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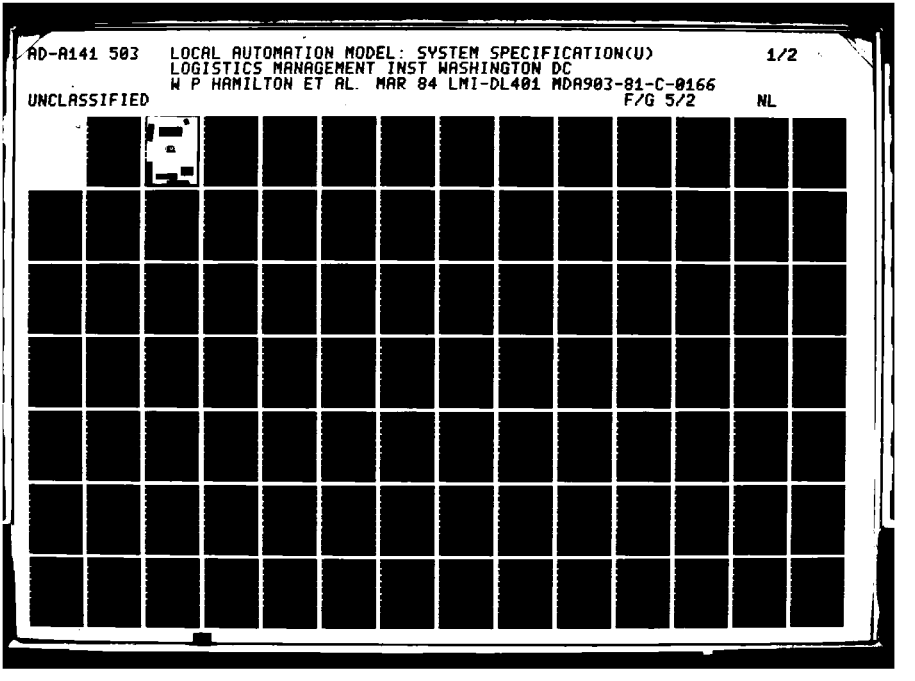

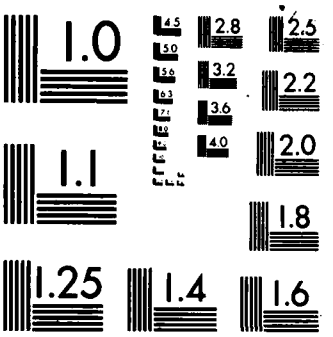

LOCAL AUTOMATION MODEL: SYSTEM SPECIFICATION

LMI

LOGISTICS MANAGEMENT INSTITUTE

(12)

LOCAL AUTOMATION MODEL: SYSTEM SPECIFICATION

February 1984

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PREFACE

The Local Automation Model (LAM) is a prototype automated library system designed to support cataloging and reference functions performed by technical libraries belonging to the DoD Shared Bibliographic Input Network (SBIN). Through use of the LAM, SBIN members can 1) search and extract bibliographic information maintained by the Defense Technical Information Center (DTIC), 2) catalog holdings with DTIC, and 3) create, maintain, and search a local catalog. The LAM will combine these capabilities in a single system using a single applications language.

The LAM will be set up at a test site library -- that of the Defense Nuclear Agency -- and will then be available for implementation by other SBIN member technical libraries.

This System Specification describes the functions and processes provided by the LAM, the software and hardware environment, and the logical flow of processes and control within the system. The system is specified using the Hierarchy-Input-Process-Output design methodology.

Software and hardware for implementing the LAM will be selected on the basis of the requirements and characteristics documented in the System Specification.

Implementation of the LAM 1) enables SBIN member libraries to reduce the time and effort required for cataloging information and later retrieving it for patrons and 2) provides greater opportunity for libraries to share bibliographic information.

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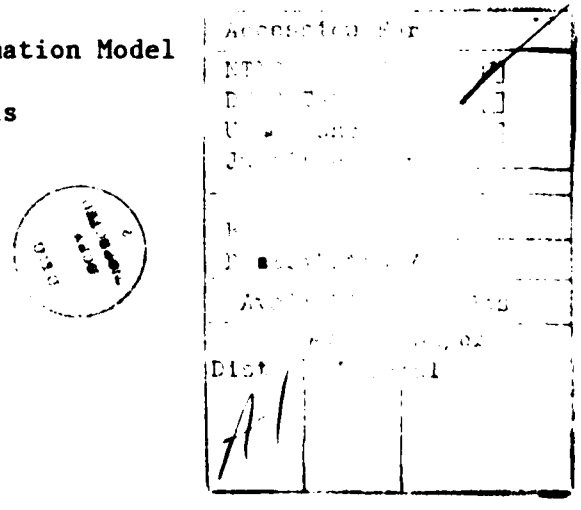

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SECTION 1. GENERAL

1.1 Purpose of the System Specification.

The System Specification for the Local Automation Model (LAM) is written to:

- Define the system functions in detail
- Communicate details of the continuing analysis between system users and the system developer
- Define the interfaces with other systems and the facilities to be used for the interfaces.

1.2 Project References.

The development of this document is authorized by Logistics Management Institute (LMI) Task Order No. DL401 (MDA903-81-C-0166) "Local Automation Model," undertaken by LMI at the request of the Defense Logistics Agency (DLA). The project began on 1 November 1982 under sponsorship of the Defense Technical Information Center (DTIC), Information Research and Technology Division, and is monitored by the Office of Information Systems, DTIC.

This System Specification utilizes the documentation listed below as well as information obtained through direct contact with the potential users of the LAM. The following documents were referred to in the development of this report:

- LMI Task Order No. DL401, "Local Automation Model," Logistics Management Institute, 1 October 1983.
- "Local Automation Model: Requirements Definition," Logistics Management Institute, 17 February 1983.
- "Local Automation Model: Conceptual Design Document," Logistics Management Institute, April 1983.
- "Local Automation Model: Functional Description," Logistics Management Institute, October 1983.

- "Department of Defense Automated Data Systems Documentation Standards," DoD Standard 7935.1-S, 13 September 1977.

- "Data Element Dictionary, DTIC Uniform Data Systems," DTIC Handbook 4185.8, AD-A083800, April 1980.

- "Department of Defense ADP Security Manual," DoD 5200.28-M, January 1973.

- "Security Requirements for Automatic Data Processing (ADP) Systems," DoD Directive 5200.28, December 1972 (including Change One, May 1977, and Change Two, April 1978).

- "Security Requirements for Automated Data Processing (ADP) Systems," DNA Directive 5200.28A, 5 December 1978.

- "Systems Design and Documentation -- An Introduction to the HIPO Method," Harry Katzan, Jr., Van Nostrand Reinhold Company, New York, 1976.

- "Automated Technical Library Accession System (ATLAS) Users Guide," Headquarters, Defense Nuclear Agency, July 1976.

- "Generalized Information Retrieval Language-II (GIRL-II) Users Guide," Headquarters, Defense Nuclear Agency, May 1974.

- "Circulation Automated Program (CAP)," Headquarters, Defense Nuclear Agency, May 1980.

1.3 Terms and Abbreviations.

The following acronyms, terms, and abbreviations are used in this document:

ADP	Automated (or Automatic) Data Processing
ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange
COM	Computer Output Microfilm
COSATI	Committee on Scientific and Technical Information, establishers of a library classification system used at DoD technical libraries
CPU	Central Processing Unit of a computer
CRT	Cathode Ray Tube video display for user terminal
Data Base	A collection of files maintained and accessed by an automated system for use by applications running on the system
DBA	Data Base Administration
DBMS	Data Base Management System -- a software product that controls and facilitates a user's interaction (input, retrieval, and processing) with data files in an automated information system
DLA	Defense Logistics Agency
DNA	Defense Nuclear Agency
DoD	Department of Defense

DRIT	DTIC Retrieval and Indexing Terminology
DROLS	Defense RDT&E On-Line System
DTIC	Defense Technical Information Center
DTL	DNA Technical Library
FD	Functional Description -- a document that defines the requirements of a system and states the operational capability to be developed
File	A collection of logically related records (generally all in the same format) maintained and accessed by an automated system as part of a data base for use by applications running on the automated system
HIPO	Hierarchy-Input-Process-Output -- a method used to graphically document a system design
Holding	A report, book, periodical, or microfilm in a library's collection
ISO	International Standards Organization
LAM	Local Automation Model
NMA	National Micrographics Association
On-line	In teleprocessing, a system in which the input data enter the computer directly from the point of origin or in which output data are transmitted directly to where they are used
RDT&E	Research, Development, Test, and Evaluation
RTIS	Remote Terminal Input Subsystem used by DoD libraries to input data to DTIC
SBIN	Shared Bibliographic Input Network
SDI	Selective Dissemination of Information
TR	Technical Report
TS	Top Secret
VTOC	Visual Table of Contents -- a diagram showing the organization of a system or component part of a system.

SECTION 2. SUMMARY OF REQUIREMENTS

2.1 System Description.

DTIC operates and maintains the Technical Reports (TR) data base containing over a million bibliographic citations and abstracts. They cover a broad range of subjects related to research, studies, and projects conducted or sponsored by the Department of Defense (DoD). The citations are entered by the DTIC staff, using bibliographic data derived from or accompanying documents submitted for entry. DTIC provides access to information contained in the TR data base in support of DoD-sponsored research and development efforts.

DTIC sponsors the Shared Bibliographic Input Network (SBIN), consisting of DoD and selected contractor-operated technical libraries. Through SBIN, member libraries can catalog -- in the TR data base -- documents published by or for their parent organizations. This capability can potentially reduce cataloging effort through sharing of bibliographic citations already entered in the TR data base by DTIC or other SBIN members. In addition, member libraries can develop on-line catalogs of their technical report holdings, search these catalogs, and produce citation lists for patrons. Access to the TR data base is provided through use of the Remote Terminal Input Subsystem (RTIS) operated by DTIC with communications capabilities provided by the Defense RDT&E On-line System (DROLS).

Though the capabilities provided through SBIN participation offer great potential for reducing the cataloging work of library staffs, present implementation methods and limitations inhibit extensive use of these capabilities. For example, the format, procedures, and protocols used by DROLS and RTIS are

likely to be different from those used in a manual or automated system supporting the library. This results in duplication of effort in that a cataloger must enter the same bibliographic data twice for each holding. Moreover, to use both systems effectively, the library staff must master two sets of procedures. Furthermore, some classified holdings cannot be cataloged in the TR data base. The libraries must therefore operate and maintain their own separate systems.

LAM is a library system designed to support cataloging and reference capabilities for SBIN member libraries using the TR data base. It is available for implementation at every SBIN member library, and users will be able to search both the TR data base and a local catalog maintained on the system. A single search language and format will access both the TR data base and the local catalog.

When cataloging a new holding, users of the system will be able to check the TR data base for the existence of a catalog record. If the holding is already cataloged, the library may choose to extract the citation for use in its local catalog and may add its own holding symbol to the TR data base citation for future reference or shelf list development. Technical reports cataloged in the local system may be readily transformed for entry into the TR data base, thus reducing the current duplication of effort associated with SBIN participation.

In addition to technical reports not eligible for cataloging in the TR data base, libraries may choose to catalog other holdings (e.g., books and serials) in the local system, following their own catalog formats.

A test site prototype of the LAM will be implemented at the Defense Nuclear Agency (DNA) in Alexandria, Virginia. System implementation will make

maximum use of available off-the-shelf software packages, modified, as required, to meet the system requirements and design in this System Specification. DNA will be responsible for operation and maintenance of the test site system. To facilitate implementation and use by other SBIN member libraries, the system will be transportable to two or three brands of minicomputers with minimum modification required. However, the data base structure used by the LAM will have to be modified to accommodate library procedures or catalog formats that differ from those reflected in the System Specification for the test site.

Though the main emphasis of the LAM is on cataloging and reference capabilities, additional library functions are covered by the initial system design. This is done to provide an integrated system design for libraries electing to implement a more comprehensive system in support of library operations. As documented now in the System Specification, the LAM consists of six modules:

1. System Management
2. Cataloging
3. Reference
4. Circulation Management and Control
5. Serials Management
6. Acquisition Management.

The system requirements contained in this System Specification will be the basis for selecting software for LAM implementation.

2.2 System Functions.

This subsection describes the functions specified for each module of the LAM. The methods used to perform these functions are described in subsection 4.4. The number in parentheses accompanying each module and function name serves as an index to system design charts and diagrams used throughout the System Specification. For example, the System Management Module is numbered "1.0," and all constituent functions performed within the module are

identified by numbers beginning with "1," e.g., Download Retrieved Data (1.5) and Generate Reports (1.8). Figure 2-1 shows the organization of the first-level system, the six modules within the LAM.

a. System Management (1.0).

Functions within this module provide basic operations common to two or more modules: support system maintenance, backup, and recovery; the interface between the system user and the applications programs contained in other modules; and the interface between the LAM and the DTIC TR data base.

Figure 2-2 depicts the organization of the System Management Module and lists the functions performed by the module.

b. Cataloging (2.0).

Functions within this module enable users to develop and update catalog entries for the local catalog and to retrieve and modify a DTIC TR data base citation for use in the local catalog. In addition, functions within this module permit users to develop and submit catalog entries for the TR data base. The organization of the Cataloging Module and the functions performed by the module are shown in Figure 2-3.

c. Reference (3.0).

This module supports bibliographic searches of the local catalog as well as the TR data base, enabling the library staff to search the local catalog and TR data base by title, author(s), publication date, security classification, local or DTIC accession number, and subject term/descriptor. Citations produced by a search can be subsearched, sorted, and printed for use by a patron. Figure 2-4 shows the organization of the Reference Module and lists the functions performed.

FIGURE 2-1. LAM SYSTEM ORGANIZATION

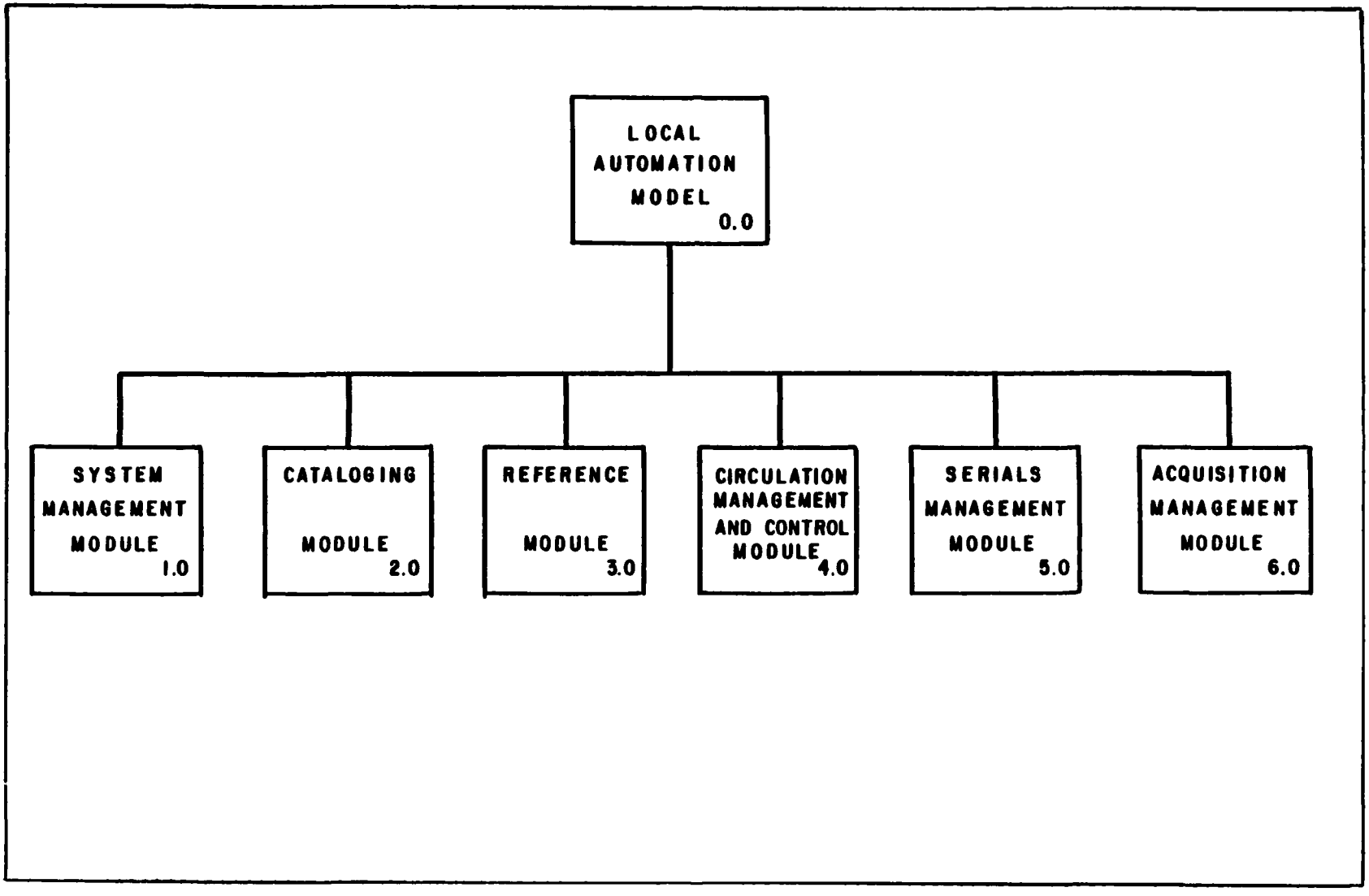


FIGURE 2-2. SYSTEM MANAGEMENT MODULE ORGANIZATION

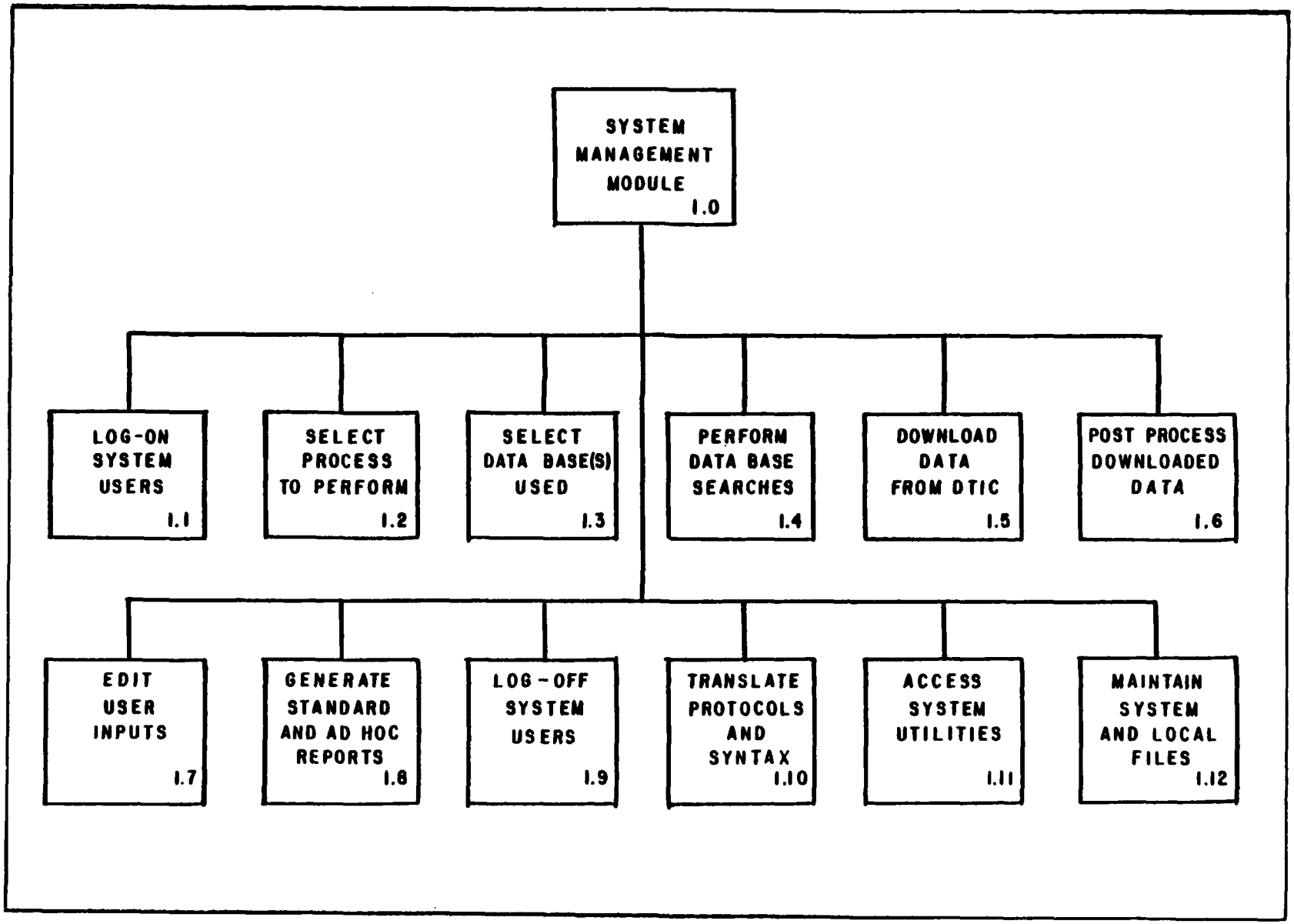


FIGURE 2-3. CATALOGING MODULE ORGANIZATION

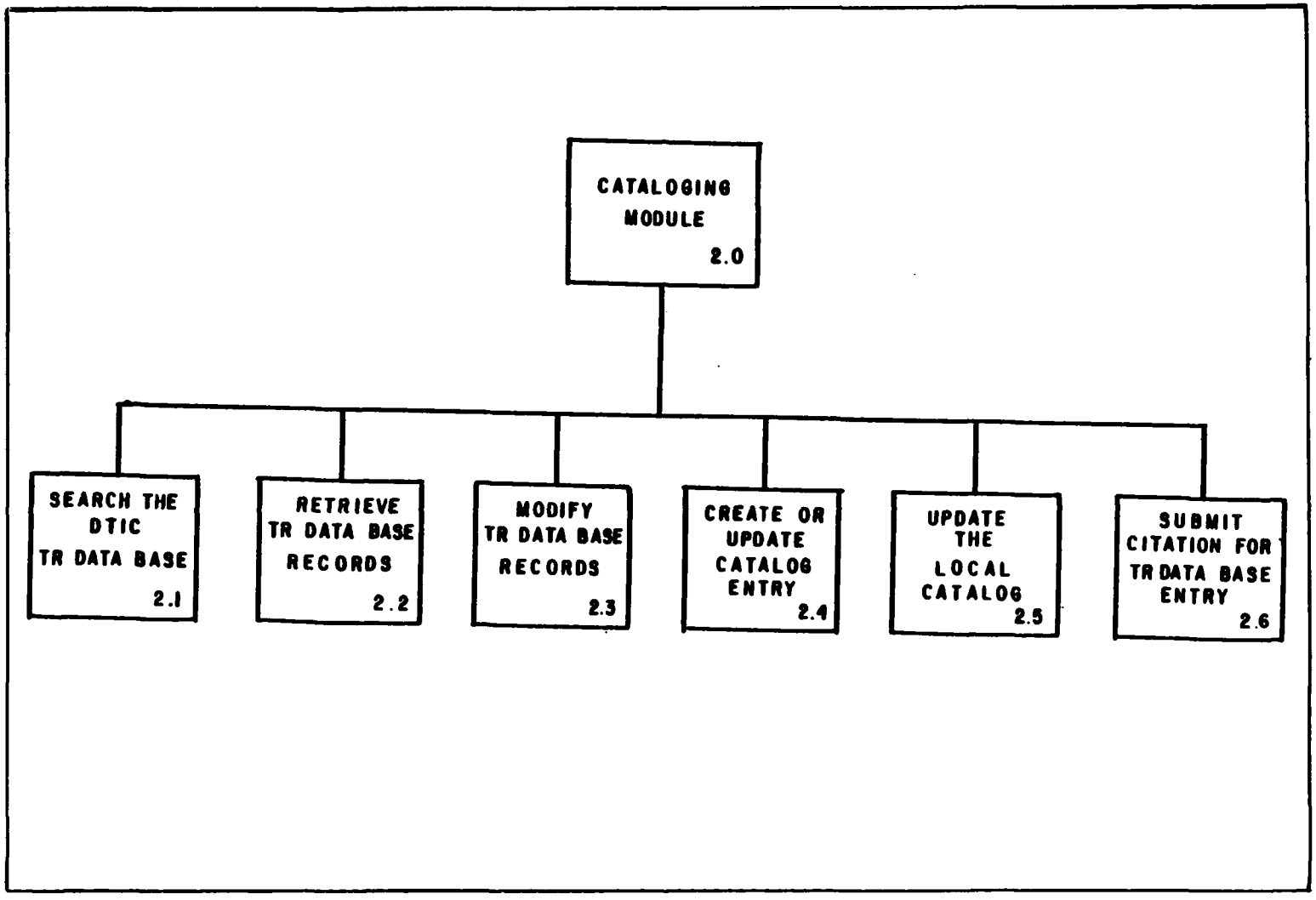
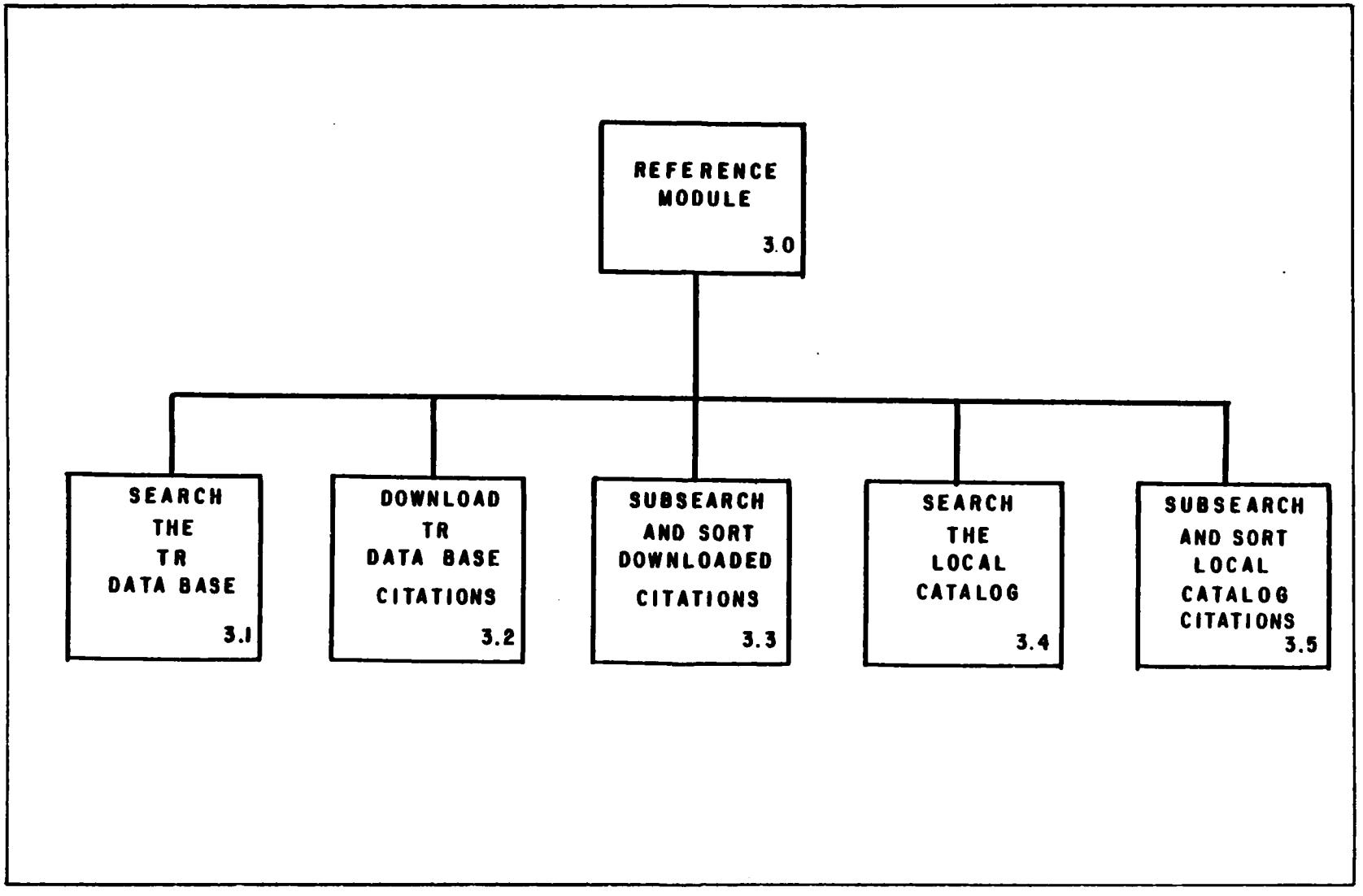


FIGURE 2-4. REFERENCE MODULE ORGANIZATION



d. Circulation Management and Control (4.0).

The functions in this module are required for collection management and tracking, patron registration, patron verification, and classified holding management. Figure 2-5 depicts the organization of the Circulation Management and Control Module and lists the functions performed.

e. Serials Management (5.0).

Functions related to tracking subscriptions held by the library are contained in the Serials Management Module. Updating the serials catalog is also supported by this module. The functions performed by the Serials Management Module are shown in Figure 2-6.

f. Acquisition Management (6.0).

Functions within this module support library operations related to acquisition budget tracking, local catalog duplication checking, and preliminary or initial cataloging for ordered or recently acquired holdings. Figure 2-7 shows the organization and functions of the Acquisition Management Module.

2.2.1 Accuracy and Validity.

Support of LAM functions requires few arithmetic operations. Basically an administrative -- rather than scientific -- data-processing application, the LAM will be able to produce statistical reports related to library circulation operations and acquisition budget management. Some of these reports will include data elements representing dollar amounts. These data will be stored as real numbers and may represent amounts ranging from -100,000.00 to +100,000.00. The accuracy requirement for such fields is two digits to the right of the decimal point (representing hundredths of dollars). Computations using these amount fields must preserve that level of accuracy.

FIGURE 2-5. CIRCULATION MANAGEMENT AND CONTROL MODULE ORGANIZATION

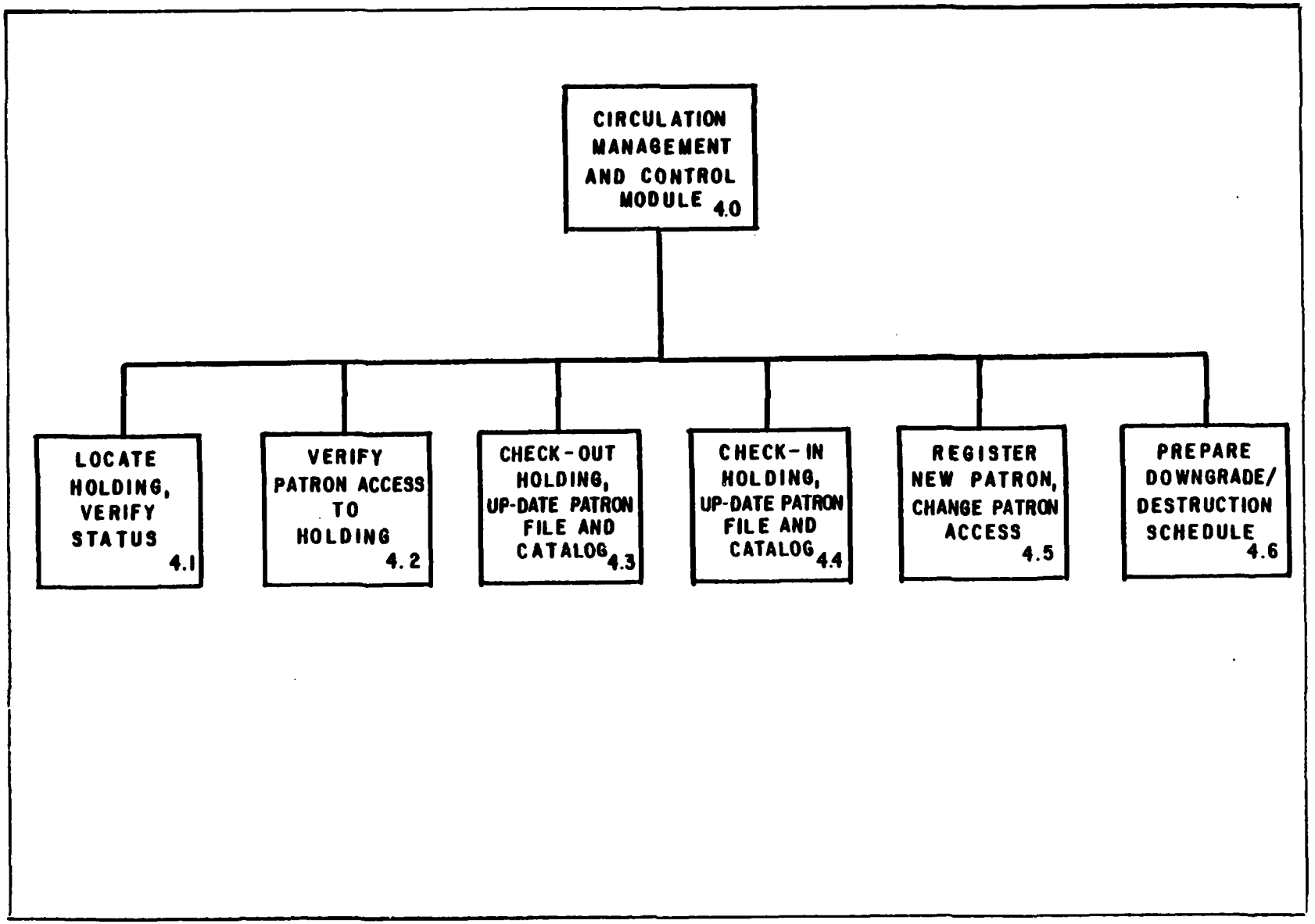


FIGURE 2-6. SERIALS MANAGEMENT MODULE ORGANIZATION

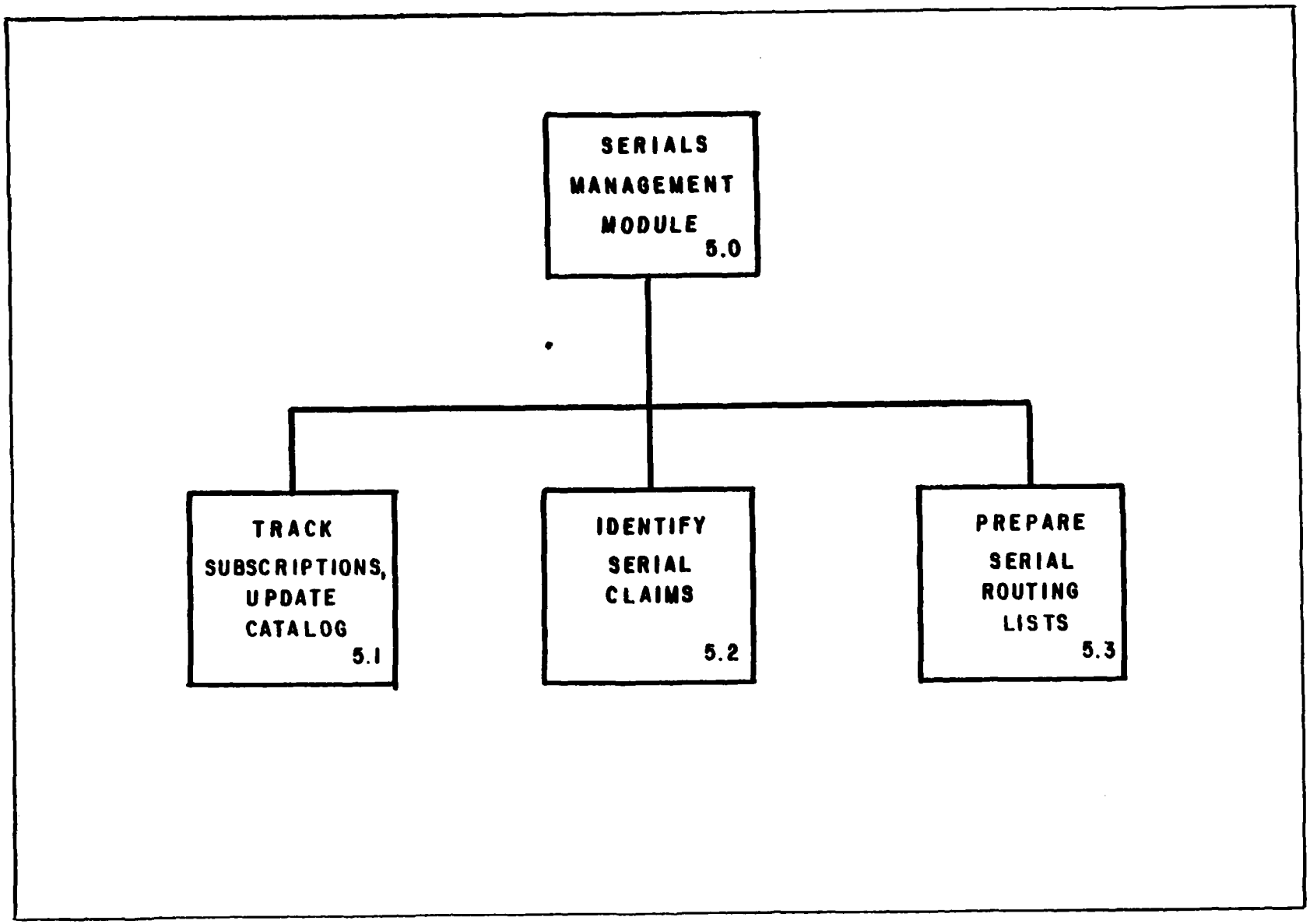
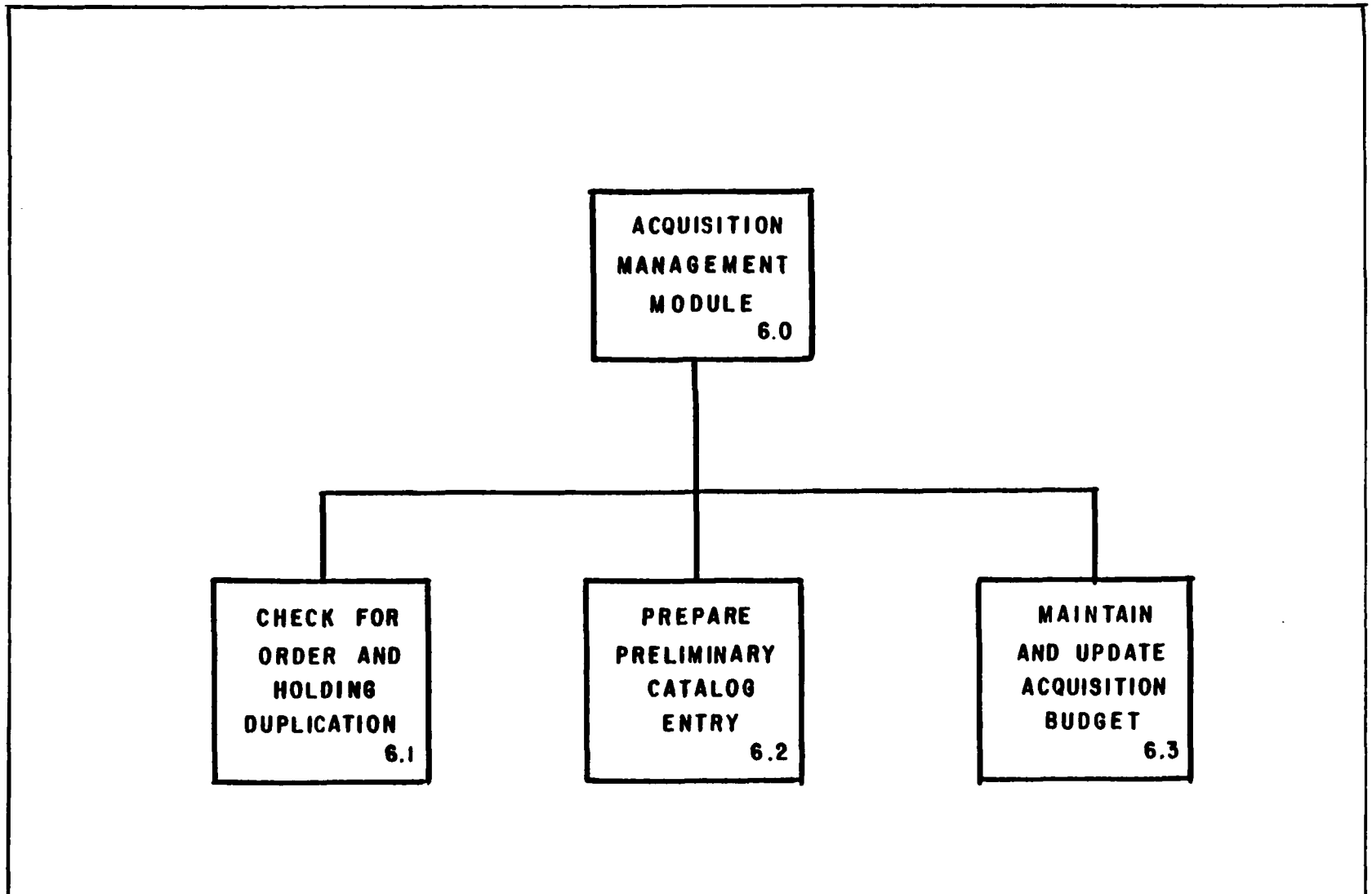


FIGURE 2-7. ACQUISITION MANAGEMENT MODULE ORGANIZATION



Data elements representing dates (e.g., report date) will use the DTIC standard format for descriptive cataloging. This format consists of one or two numeric digits, three alpha digits, and two numeric digits (e.g., 1 JAN 83 or 15 FEB 83). Data that represent current dates should be drawn from the LAM computer system.

The need to process data elements representing security classification or special handling procedures increases the level of importance for accuracy and validation. Data elements that depict this information require both human verification and software verification. The software edits must be capable of cross-checking all data elements that contain or refer to associated data elements. An example of this type of validation is REPORT CLASSIFICATION. An entry in this field is mandatory. In addition, data fields that represent REGRADE CATEGORY, REPORT CLASSIFICATION, and REPORT TITLE will be validated.

Required data elements are identified in Appendix B (see column entitled "Required"). The physical format and characteristics of all such data elements entered in the system will be verified automatically to ensure the integrity of the data base. These accuracy and validation edits will be performed by means of the LAM software/data dictionary. Edit requirements for data elements in the TR data base are defined in the DTIC Data Element Dictionary.

The LAM will transmit to and receive data from the DTIC TR data base via communication lines. The LAM will be designed on the basis of current DTIC communication protocol standards (DROLS/RTIS) and will use the data transmission error-checking routines provided by DROLS/RTIS. Error-checking routines are designed to verify complete and accurate transmission of messages between devices and to provide methods for retransmission of message blocks that are incomplete or erroneous.

2.2.2 Timing.

These timing requirements apply to the LAM:

- Response times to user queries of the local data base for bibliographic searches or patron information will average 7.5 seconds or less.

- Response times for executing non-search commands (e.g., selecting system functions and generating output reports) will average three seconds or less.

- Response times for queries of the DTIC TR data base are dependent on conditions external to LAM operations (e.g., DROLS transaction volume and complexity of the search selected). But, LAM users should make sure that the structure of the search submitted to DTIC is well defined and as narrow in scope as possible, consistent with search objectives. This practice should contribute to improved response times from the TR data base and DROLS.

- Sequential relationships among system modules are described in subsection 4.2. As an interactive system with as many as five independent components/modules, the LAM will have no routinely scheduled sequential processes involving all components simultaneously.

- The process of sequencing and interleaving of programs within individual system modules is described in subsection 4.4.

- The software selected for system implementation must be capable of managing or controlling concurrent access to the data base by users operating within separate LAM modules. It is likely that simultaneous use of different modules will produce concurrent or nearly concurrent requests for data base access.

2.3 Flexibility.

Capabilities will be provided for adapting the LAM to changes in selected operating requirements. The following are likely changes in operating requirements, along with the corresponding system features that provide the required flexibility:

- Data Base Content -- Once operational, the LAM will enable the user to change the format of elements in the local data base, remove them, or add to them.

- Data Base Structure -- Before implementation, the LAM data base can be structured to reflect the catalog contents and format required by the implementing library.

- Phased Implementation -- The LAM will be implemented in phases; each module will be capable of independent implementation.

- Ad Hoc Reports -- The LAM will be capable of producing ad hoc reports to support analysis of library operations and management of library resources.

- Hardware Selection -- The LAM will be capable of implementation on two or three brands of computers. (This design objective may be waived if implementation feasibility would otherwise be affected adversely.)

- DTIC Interface -- Though none are now scheduled, changes in the protocols and syntax in use by DTIC (DROLS) after implementation of the test site system would require development and implementation of changes in the protocol and syntax translation software that was first developed for the LAM.

- User Interface -- The LAM will provide two levels of user operation: a fully prompted version with extensive "help" and error messages for occasional or inexperienced users, and an abbreviated or compact set of user instructions to speed the work of experienced users. Either level of operation may be selected by a user during a session on the system.

SECTION 3. ENVIRONMENT

3.1 Equipment Environment.

This subsection describes the equipment required to implement the LAM. General equipment characteristics and equipment selection parameters are discussed, and characteristics for the test site system are recommended. The equipment characteristics described are based on estimates derived from a preliminary survey of commercially available library software packages. Recommendations concerning specific brands of equipment for implementing the system are not included in this document but will be made in conjunction with selection of applications software. Selection of applications software will use the requirements and performance criteria contained in the System Specification and will generally dictate the brand(s) of equipment suitable for system implementation. Selection and sizing of equipment for implementation outside the test site should be done as part of implementation planning at each site.

3.1.1 Central Processor.

General Characteristics. Along with the related operating system and utility programs, every LAM installation will need a central processor capable of supporting applications programs for the modules selected for implementation by the library. The processor must support concurrent operation of the operating system, applications programs, and required LAM utility programs, such as the protocol and syntax translator. The central processor must include an operator console, an input/output control unit and input/output channels capable of supporting required peripheral devices, and a data communications processor capable of supporting the local user network and the communications link to the TR data base.

Selection Parameters. Central processor size is based on the amount of main memory required to run the applications programs selected for the LAM, as well as expected user transaction volume and required response times, and the number and types of peripheral devices required for system operation.

Characteristics of the Test Site System. The test site will require a central processor with at least one megabyte of main memory. It must support the peripheral devices (specified for the test site system in the following paragraphs) and provide a data communications processor that will support simultaneous access by five users.

3.1.2 Disk Drive and Controller.

General Characteristics. Every LAM installation will require at least one disk drive and controller for storage of the local data base. The disk controller directs activities between the central processor and the magnetic disk(s). The disk drives used for LAM will have either fixed or removable disks. Removable disks are required only if software and data base back-ups are done on disk. If magnetic tape is used in system back-up, fixed disks are recommended. The size (capacity) of a disk is measured by the amount of data that can be stored on it. This capacity is measured in bytes (or characters).

Selection Parameters. Determination of disk storage requirements is made by adding the number of bytes needed to store each file (catalog, patron, and authority) and program (software utilities, application, and system), plus an additional factor for data base overhead (generally one-third of the data base size) and planned data base and program (software) growth projection over the life of the system. The storage requirements may be met with one or more disks mounted on one or more disk drives. The numbers of disks and drives required are also influenced by the expected frequency of disk access, the sizes of individual files, and the specific capacity of each manufacturer's

products. If disks are selected as the medium for maintaining back-up copies of software and the data base, the number of removable disks required to operate the system will be doubled. (This has no effect on the number of disk drives or controllers needed.)

Characteristics of the Test Site System. The test site will require an on-line disk storage capacity of 350 million bytes (characters). The test site will use magnetic tape for software and data base backups. The number of disk drives and disks required depends on the brands and models of hardware selected by DNA.

3.1.3 Tape Drive and Controller.

General Characteristics. A LAM installation may require a magnetic tape drive and controller for creating back-up copies of the data base and software and as a physical interface between computer output microfilm (COM) printers and magnetic disk, if installed.

Selection Parameters. The selection of a tape drive and controller is determined by an installation's backup processing method, the activities that the installation wishes to support (e.g., transaction logging, mass storage for archiving), and the need to transfer data to and from external systems. If several activities require simultaneous use of tape, more than one tape drive may be needed. A tape controller provides the interface between the CPU and the tape drives. Some tape controllers are separate units and control multiple tape drives; some are contained in the tape drive. These features and options are dependent on the number of tape drives needed, as well as performance characteristics, brand, and model.

Characteristics of the Test Site System . The test site will require one tape drive and controller for transaction logging. Another tape drive may be required if the system backup will use tape rather than removable disks.

Their tape drive and controller must support nine-track 1,600-bpi tapes. The tape drive will also produce magnetic tapes for input to the COM printer.

3.1.4 User Display Terminals.

General Characteristics. LAM installations will require at least two alphanumeric display terminals (one for the CPU console operator and one for the library) and a terminal controller. All terminals transmit and display data generated from the attached keyboard and display data/messages generated by system or application software. Display terminals enable the operator/librarian to communicate with the system.

Selection Parameters. The selection of alphanumeric display terminals is determined by the display features (screen size, screen capacity, display format, and character set), keyboard features (programmable function keys and key arrangement), and the ability to support an auxiliary printer. The terminals obviously must interface with the central processor that has been selected for the LAM.

Characteristics of the Test Site System . The test site will require a terminal controller to manage the interface between the terminal and CPU. The test site will require five alphanumeric CRT terminals in the library for entering data or queries and displaying data from the host processor. These terminals must support the full ASCII character set, upper and lower case, and support full-screen processing (80 characters per line, 24 lines per screen). Two of these CRTs must support low-speed printers. A sixth terminal and printer will be dedicated to the system operator to control and monitor LAM operations.

3.1.5 Local Communications Network.

General Characteristics. The LAM requires a local communications network tying together the central processor, user terminals, and other devices

located within or near the library. Important characteristics of this type of network are high transmission rates, short transmission distances, and low error rates. The network must allow for equipment additions, replacements, and deletions, with little impact on the network. The local network must also have the security features required for processing classified data. Local security requirements and implementation alternatives are discussed in subsection 3.4.

Selection Parameters. The type and configuration of the local network is selected on the basis of required transmission medium and speed, maximum distance between devices, number and types of attached devices, and local organizational guidelines and regulations for security.

Characteristics of the Test Site System. The test site system will use a local communications network capable of transmitting and receiving classified data and linking the remote library terminals and printers with the LAM processor. Included as part of the network are encryption devices, modems, communications controllers in the library and the computer site, a multiplexer serving five terminals and two printers in the library, and shielded transmission cable. The line rate for the local network should be at least 2,400 baud. The communications protocol capabilities of the remote devices must be compatible with the protocol supported by the host processor.

3.1.6 DTIC Communications Link.

General Characteristics. LAM installations will provide access to the DTIC TR data base, via DROLS/RTIS, by interfacing with DTIC's Sperry DCP40 communications processor. The following characteristics are specified for the LAM/DTIC communications link:

- Interface - RS-232C, MIL-STD-188B, CCITT

- Screen size - 1,920 characters (80 columns by 24 lines)
- Buffer size - 1,920 characters
- Auxiliary device interface - printer
- Character set - 64 ASCII characters
- Character generation - 7-by-9 dot matrix
- Keyboard - typewriter, plus function keys
- Data transmission - 2,400-baud, encrypted, synchronous, blinking cursor, ASCII, DTIC host polling only.

Selection Parameters. In many cases, the communications processor(s), equipment, and lines used to establish communications links between DTIC and SBIN member libraries are already in place. If not, libraries have the option of selecting a direct-connect classified line, direct-connect unclassified line, or dial-up unclassified line between DTIC and the local library. Selection depends on the need to process (transmit or receive) classified data. Encryption devices are required to process classified data. For each LAM installation, devices are needed at both DTIC and the local site.

Characteristics of the Test Site System. The test site system will adhere to the characteristics, standards, and protocols defined for DTIC (DROLS/RTIS), Sperry DCP/40 communications processor, and Univac's Uniscope 100/200 CRT Terminals.

3.1.7 Printers and Printer Controller.

General Characteristics. LAM installations will require a printer controller and printers. These printers will produce hard-copy printouts consisting of system or application program messages and reports used to manage the local library. Several types of printers are available; they include serial, line, and page printers. Either serial or line printers are recommended for the LAM. Line printers are faster than serial printers and could

be centrally located to produce large reports or provide high-volume output. The slower serial printers could be attached to CRT terminals to produce short reports or hard copies of data from the CRT.

Selection Parameters. Parameters used to determine the types or classes of printers for LAM sites are:

- Character set - the types of character sets and varieties of symbols required by the library
- Print column - the maximum number of print columns required
- Print speed - the maximum rated speed in characters per second (cps) or lines per minute (lpm)
- Horizontal spacing - the number of horizontal characters per inch (cpi)
- Vertical spacing - the number of vertical lines per inch
- Number of copies - the total number of copies the device can print concurrently
- Feed mechanism - the type of paper-feed mechanism (e.g., rollers or tractors) used on the printer
- Buffer - the size of the internal buffer, if one is available
- Controller - the availability of a controller for the printer
- Interface - the type of interface with the CRT or CPU required by the printer.

Characteristics of the Test Site System. The test site will require three printers -- two serial printers attached to CRTs in the library, the third, a line printer, dedicated to the system operator to maintain a hard copy of system activities and to produce high-volume reports. These printers must be capable of producing 132-column output. The two serial printers in the library should print at 80-120 characters per second; the line printer should be capable of faster printing -- approximately 300 lines per minute.

3.2 Support Software Environment.

Specific support software cannot be chosen until the applications software is selected. Applications software for performing LAM functions and processes will be selected on the basis of requirements in this System Specification. General characteristics of support software however, have been developed on the basis of system operating requirements derived from performance requirements for applications software. The support software requirements are described in the following paragraphs.

3.2.1 Operating System and Utility Program Requirements.

User Access. The LAM will provide on-line interactive access for multiple users. For the DNA test site, simultaneous access by as many as five users is required. This capability may be provided through interactive timesharing.

Disk File Access. A disk file access capability is required to support data storage and retrieval. The disk file access method must support the file access method used for data base management.

- File Maintenance. Routines for performing disk file backup, archiving, and restoration are required. Requirements for performing system and data base backups, restarts, and recoveries are described in subsection 4.1.

Data Sorts and Merges. Several LAM applications require the use of a sort or merge routine for processing data base extracts. This capability may be provided by a system utility or by a routine contained in the data base management implementation method.

Applications Development Language. The operating system must support the applications language selected for the LAM. This includes supporting a compiler (if a compiled language is selected), a linkage editor, and a program loader.

Compatibility. The operating system must provide a compatible environment in which operation of any single system software element (applications, data base management, utilities, communications, or syntax/protocol translation) does not prevent concurrent operation of any other software element.

3.2.2 Data Base Management Requirements.

General. A software product will be selected for performing data base management for the LAM. This software may be an integral part of a library software package or may be a distinct base management system (DBMS) product. Regardless of the source, this software must provide all applications program-data base interfaces for locating, updating, and extracting data stored on magnetic disk devices. This software must permit development and execution of ad hoc reports without requiring development or specification of data access procedures by the user. In addition, the software used for data base management must permit on-line, interactive access to the data base by application programs. Some of the capabilities specified in this subsection may be contained in a data dictionary that is either included as a part of a DBMS or provided as a separate element within the system.

Concurrent User Access. The software selected for data base management must permit or control concurrent user access to the data base. If not, means must be provided for automatically queuing and scheduling data base access. The average system response times specified in subsection 2.2.2 must be met, regardless of the concurrent access or control method used.

Query Language. The data base management system or software selected must support a query language for use in developing standard and ad hoc reports. The query language should be an integral part of the data base management system in that the language is designed specifically for that DBMS. Alternatively, an applications language interface may be used to meet report

preparation needs. The query language must support on-line, interactive development, testing, editing, and execution of ad hoc and standard reports.

Data Element Redefinition. Once operational, the system will be capable of redefining (modifying) data element characteristics, deleting data elements, and adding data elements as required by the library staff. This must be accomplished with minimum disruption of normal user access to the data base.

Data Base Restructuring. The software selected for data base management within the LAM must permit development and implementation of alternative data base structures for other libraries that acquire the LAM. Other libraries may use different catalog formats and may choose to include different data elements in the data base.

Boolean Logic and Text String Searches. The query language and data base management system used within the LAM will provide Boolean logic and text string search capabilities for use in processing local catalog reference searches.

Input Editing and Verification. Data base management for the LAM includes editing and verifying inputs before updating the data base. Edit criteria for the LAM inputs are derived from those used by DTIC for the TR data base, supplemented as necessary to suit local operating requirements (e.g., to ensure accuracy of data related to security classification and handling of classified holdings). Edit criteria (format, allowable values, logical and corresponding relationships with other data elements) for LAM inputs are specified in Appendix B, "Data Elements for the DNA Data Base."

For data elements where no specific edit criteria are shown, inputs will be edited for correct physical format, as indicated in Appendix B. In

addition, if no edit criteria are specified and the data element is "required," blank or null entries will not be accepted for that data element. Input edits and verification will be accomplished concurrently with input entry. Edit or verification errors will be transmitted to the user making the entries for correction before the system accepts them for data base update.

Authority File Cross-referencing. The LAM will use an authority file of subject terms/descriptors to control subjective cataloging and reference searches by subject. All subject terms/descriptors entered into the system will be edited against this authority file. The library staff may modify this file as required to meet local needs. The authority file will cross-reference authorized terms/descriptors with common substitutes or synonyms to aid the user in developing subjective catalog inputs and in developing reference searches.

3.2.3 Requirements for Protocol and Syntax Conversion.

General. The term protocol refers to the set of conventions governing the format, physical composition, and relative timing of message exchange in a communications network. Similarly, syntax is the set of rules governing the structure, format, and content of either a programming language or the method used for data representation by a program or computer. Protocol and syntax translation or conversion is required for communication between computers using different communications protocols and data representation syntax. This translation or conversion will be performed without user intervention, making the conversion process totally transparent to the system users.

Syntax Conversion. The LAM will use a single query language for retrieving citations from both the local catalog and the TR data base. Queries for the TR data base will be converted to DROLS syntax by the LAM and transmitted

to DTIC without user intervention. Similarly, postprocessing of references from DTIC and local files extracted through a query will be performed by means of a single language.

Protocol Conversion. The LAM will convert communications protocols for transmissions between the local system and the TR data base. The communications protocol used by DTIC is described in subsection 3.3. The conversion capabilities of the LAM include establishing the communications link and logging the user into DROLS.

3.2.4 Other Interface Requirements.

Microfilm. The LAM will provide data for preparing COM. Generally, a magnetic tape containing the material to be microfilmed is produced and transferred to the COM printing device. Tape format requirements are dependent on the type of COM device used to produce the microfilm. The test site library will use COM in lieu of hard copy shelf lists. Other libraries may elect to implement this capability as an optional feature of the system.

3.3 Interfaces.

The LAM will interface with the DTIC Univac 1100/82 via DROLS/RTIS. This requires that LAM hardware and software be capable of interfacing with a DCP/40 communications processor and emulating Uniscope 100/200 terminals. That is, the LAM must be capable of responding to a Univac DCP/40 communications processor using a direct-connect, 2,400-baud, synchronous line that has been encrypted for classified (SECRET) transmissions. To emulate a U100/200, the LAM must accept the ASCII character set, upper and lower case, and a full-screen (1,920 pixels, 80 columns x 24 lines) processing mode. The LAM must be able to dial the DROLS/RTIS number and make the proper line connection. DTIC uses commercial and Government lines to connect remote users.

The DROLS allows remote users to enter only a predefined set of commands that are validated during the user session. These commands allow DROLS users to interact with the Technical Reports and Work Unit data bases. DROLS/RTIS does not and will not permit access to any other systems on the Univac 1100/82.

3.4 Security and Privacy.

DNA plans to store data up to a SECRET level of classification; this includes all of DNA's catalog. None of the application or DBMS software associated with operation of the LAM will be classified. However, access to the patron file will be restricted to the DNA library staff and the installation/facility security officer. The highest classification level for data exchanged between the DTIC TR data base and the local system will be SECRET. Abstracts and indexes produced by the system in response to a patron query may be classified SECRET. These outputs may take the form of terminal screen displays or hard-copy printouts. When classified titles and descriptors are used in the catalog, any title or subject term shelf list or other report produced from the catalog must be classified to at least the same level.

The patron file may also contain data subject to privacy restrictions. Access to this file is restricted to the library staff and security officer for use in establishing and verifying need-to-know and security clearances in conjunction with checking out holdings.

The DNA LAM is to operate in a dedicated security mode, meaning that the central processor and all of its connected peripheral devices and remote terminals will be used and controlled only by users having the required security clearance and need-to-know. The access, personnel, physical, and communications security controls established in this mode for the computer

facility, communications lines, peripheral devices, and areas containing remote terminals are normally adequate to meet the security requirements prescribed in "Security Requirements for Automated Data Processing (ADP) Systems," DoD Directive 5200.28, Section VI. For SBIN sites that will not use the LAM to store or process classified data, the security considerations discussed in this subsection are not relevant; the privacy restrictions however, will apply to unclassified sites.

The following LAM security requirements are derived from DoDD 5200.28, DNA Directive 5200.28A, and "ADP Security Manual" (DoD 5200.28-M).

3.4.1 System Physical Security.

Installations planning to implement a LAM will have two means of providing for system physical security. One is to locate the system in a secure, TEMPEST shielded environment, operating in a dedicated security mode, as defined above. With this alternative, an installation would not have to obtain TEMPEST-certified equipment, because all equipment would be in a shielded environment, such as a vault or a data-processing installation authorized to handle classified data. The LAM at DNA will be set up this way.

The alternative is to obtain only TEMPEST-certified equipment (processor, storage devices, terminals, printers, etc.), place the system or its components in an unshielded area, and restrict physical access to it. In addition, interdevice communication, as from the processor to a terminal, must be secured by shielded cables or other means, and unauthorized access to the system must be prevented by software controls. With either alternative, a site would require encrypted communication lines for accessing classified data from the TR data base.

These are additional LAM security requirements:

- Access -- the system must limit access to authorized users by requiring the user's name and password.

- Password -- the system must restrict authority for assignment of user passwords to the installation security officer or designated representative.

- Software protection -- the system must protect its software from unauthorized changes.

- Unauthorized try -- the system must allow no more than "n" attempts at access to the system. After "n" attempts, access is to be denied, and the system manager notified. (The value of "n" will vary and will be determined by the system manager.)

- Audit log -- an audit log must be maintained as a history of the use of the LAM, to permit regular security review of system activity.

- Hardware requirements -- these are the hardware requirements:

  -- All operator codes are to produce known responses by the computer

  -- All registers must be able to protect their contents by error detection or redundancy checks

  -- Automatic programming intercept is to control malfunction by system or operator

  -- "Read," "write," and "execute" access rights of the user are to be verified at every fetch cycle of an instruction and its operand.

- Aborts -- security safeguards are to be provided to cover unscheduled system shutdown (aborts) and subsequent restart, as well as scheduled system shutdown and operational start-up.

3.4.2 Program Security.

The following security measures apply to the operating system and application programs of the LAM:

- Unauthorized use -- the system must contain a list of authorized users for each program and limit the use of specific programs to authorized users or categories of users.

- Program modification -- the system must provide users with a means of assigning passwords to their programs and must limit access to these programs to library, agency, DoD, Service, and other designated LAM users.

- Operating system -- to make sure that all access to materials is made via an access control and identification system that associates the user and his terminal, the operating system must control:

-- All transfers of material between memory and on-line storage devices and between the computer and any remote device

-- All operations associated with allocating ADP system resources, memory protection, and system interrupt

-- Access to operating system maintenance programs and utilities

-- All other programs.

3.4.3 Data Security.

When used to process classified data, the system must satisfy all DoD and agency data security regulations, including the following:

- Access rules -- access rules provide or limit user access to specific files and establish the type of access (e.g., read only, read and modify). Only authorized library staff members will be permitted "read and modify" access. Access to the user access rules contained within the LAM will be restricted to individuals authorized by the library manager and agency/installation security officer.

- Security markings -- all classified material accessible by or within the LAM must be identified as to its security classification and access or dissemination limitations, and all output of the LAM, including citations retrieved from the DTIC data bases, must be appropriately marked. Outputs include both hard-copy (paper or COM) and CRT screen formats. COM output must contain two sets of security markings: one set readable with the naked eye and a second set at the top and bottom of each reduced page.

- Accountability -- the LAM site is accountable for all unclassified data that becomes classified as a result of local post-processing.

- Disposition -- at the time of the disposal of LAM data, they must be secured by means of the erasure and disposition procedures outlined in "ADP Security Manual," DoD 5200.28-M.

- Data input to DTIC -- a LAM site must adhere to all security restrictions concerning inputs to the TR data base; in particular, no data above the SECRET level may be transmitted to DTIC.

- Password protection -- passwords help protect data, and local standards governing their issuance and protection of passwords must be followed. Additional protection may be added to the traditional rules governing password protection. For example, the additional protection may be achieved by encryption of the password.

3.4.4 Communications Security.

In the DTIC/SBIN and LAM network communications, security will concentrate on two major areas: access control and data protection. In access

control, the mechanisms and the environment of the data communications facility are protected from unauthorized entry and use. Badges, guards, and personal recognition limit access to the system.

Protecting data transmitted over communication networks is difficult because data are transparent. Data are guarded by encryption while they are on a communications path. Encryption provides security in that it prevents browsing, but it cannot protect data against sophisticated electronic techniques. Encryption devices and information can be obtained through DoD, DTIC, Service, or agency security representatives.

3.5 Controls.

When the test site system is complete, responsibility for operational control of the system will be assumed by the DNA. The data base administration (DBA) functions and responsibilities for the LAM will be shared by the ADP staff and the DNA library staff.

The primary DBA functions and responsibilities are:

a. Review of data input procedures to provide completeness and accuracy of data submissions

b. Consultation with DNA LAM users to determine whether the contents or organization of the data base require change

c. Control over initiation of update runs, restart/recovery procedures, data base back-up procedures, and initiation of report generation.

Data integrity is to be maintained in two ways: first, through automated range and edit checks on selected data elements entered into the system, and, second, through manual checks by the library staff. All criteria for data element editing are shown in Appendix B, "Data Elements for the DNA Local Automation Model." In addition, a thesaurus (authority file) is to validate all posting terms and descriptors upon entry into the system.

If the Circulation Management and Control Module is implemented, security clearance and need-to-know data on all patrons will be stored in the system and used by the library staff to help make sure that classified and restricted materials are circulated to cleared personnel only.

SECTION 4. DESIGN DETAILS

4.1 General Operating Procedures.

In this subsection, system operating procedures for the LAM are described generally, as an orientation to the operating requirements of the system with respect to creation and maintenance of the system backup and recovery, and recurring data entry. Specific procedures related to the functions performed by individual system modules are described in subsection 4.4.

4.1.1 Creation of the Initial Data Base.

The LAM data base consists of the local catalog and the authority file for subject terms/descriptors. If the Circulation Management and Control Module is put into operation, a patron file is added to the data base. Before system implementation, or as a part of it, these files must be created in a format that is compatible with the applications used by the system. Subsection 4.3 and Appendix B, include descriptions of the data found in the LAM data base for implementation at the test site. The data base structure for subsequent implementations of the LAM will depend on the specific library catalog structure and content and must be established individually for each library. If a library currently maintains similar files, consideration should be given to converting them for LAM use. If such files are not currently maintained or if existing files do not contain all required data, the library will have to arrange to have the data entered into the system.

4.1.2 Recurring Data Entry.

To maintain the local catalog, the library staff will be required to enter bibliographic data regarding new holdings into the system. The capability to do this is provided by the Cataloging Module. In a second mode

of data entry, library staff members will be required to enter search parameters in support of requests by patrons for citations from the TR data base and the local catalog. Procedures for performing reference searches are contained in the Reference Module.

4.1.3 Data Base Updates, Backup, and Recovery.

The local catalog will be updated daily to reflect catalog entries made during the preceding 24 hours. The authority file of subject terms/descriptors will be updated as required, to reflect changes by the library staff. If the patron file is maintained, it will be updated whenever a patron registers or the library staff enters a change transaction.

Any data entered by the library staff for the purpose of updating the data base may first be entered on temporary files created for the purpose. Data in these temporary files will be added to the system data base in accordance with the preceding update schedule. Temporary files used to update files of the system data base will be retained on magnetic tape or removable disk until the next data base backup.

As part of system implementation, backup copies of all data base files will be created and stored on either magnetic tape or removable disks before the system begins to operate. A backup copy of the local catalog will be created weekly, with copies of the file maintained on either magnetic tape or removable disks. Backup copies of the authority and patron files will be created monthly and retained on magnetic tape or removable disk. Backup copies of temporary files used to update data base files may be destroyed after creation of weekly or monthly file backup copies.

If the contents of the local data base are lost or destroyed, it will be rebuilt from the file backup copies and temporary update files. First, the latest backup copy of the data base will be loaded. Then, all

current temporary update files (temporary update files created since the last file backup copy was produced) will be applied to the data base.

4.1.4 Software Backup, Recovery, and Restart.

Duplicate copies of all software for applications and system support (e.g., utilities) will be maintained on either magnetic tape or removable disks. These copies will be used to recover the system in the event of system failure. If updates to the applications and support software become available, they will be installed by the data processing staff operating the LAM and added to the backup copies.

4.1.5 TR Data Base Access.

The LAM includes a protocol and syntax translator for communication with the DTIC TR data base. The protocol translator provides the Uniscope 100/200 emulation required by DTIC. Queries directed by the user to the TR data base will be created by means of a standard LAM query language. The syntax translator will convert the query to the format required by DROLS. Conversely, data retrieved from the TR data base for local use will be translated into the format required by the local system.

4.1.6 Report Generation.

Standard reports are available from many of the system modules in the LAM (see subsection 4.3.2). Generation of these reports is the responsibility of the system user. Generally, a user will enter report parameters from a keyboard as part of report generation. These parameters control the contents of the report requested. Ad hoc reporting capabilities will be available to the user through either a high-level programming language interface or a retrieval language within the data base management system used by the LAM. In both cases, the user must become familiar enough with the language(s) available that ad hoc report programs can be written.

4.2 System Logical Flow.

This subsection is an introduction to the logical flow of processes, data, and control within the LAM. The logical flow between system modules is described in this subsection and depicted in Figure 4-1. The logical flow within each module is depicted in the input-process-output charts presented in subsection 4.4 (Figures 4-2 through 4-7) for each of the six system modules. Detailed discussion of these charts is reserved for subsection 4.4. Subsection 4.3 covers the inputs and outputs associated with each module. Subsection 4.4 covers the details of the processing steps used within each of the modules and is an extension of the module descriptions contained in subsection 2.2.

A summary of the logical flow among the six LAM modules follows.

4.2.1 System Management (1.0).

This module controls user access to the system, provides the interface between system applications, the local data base, and the DTIC TR data base, and provides access to the local data base and the TR data base. The module is essential to support the operations of all other modules.

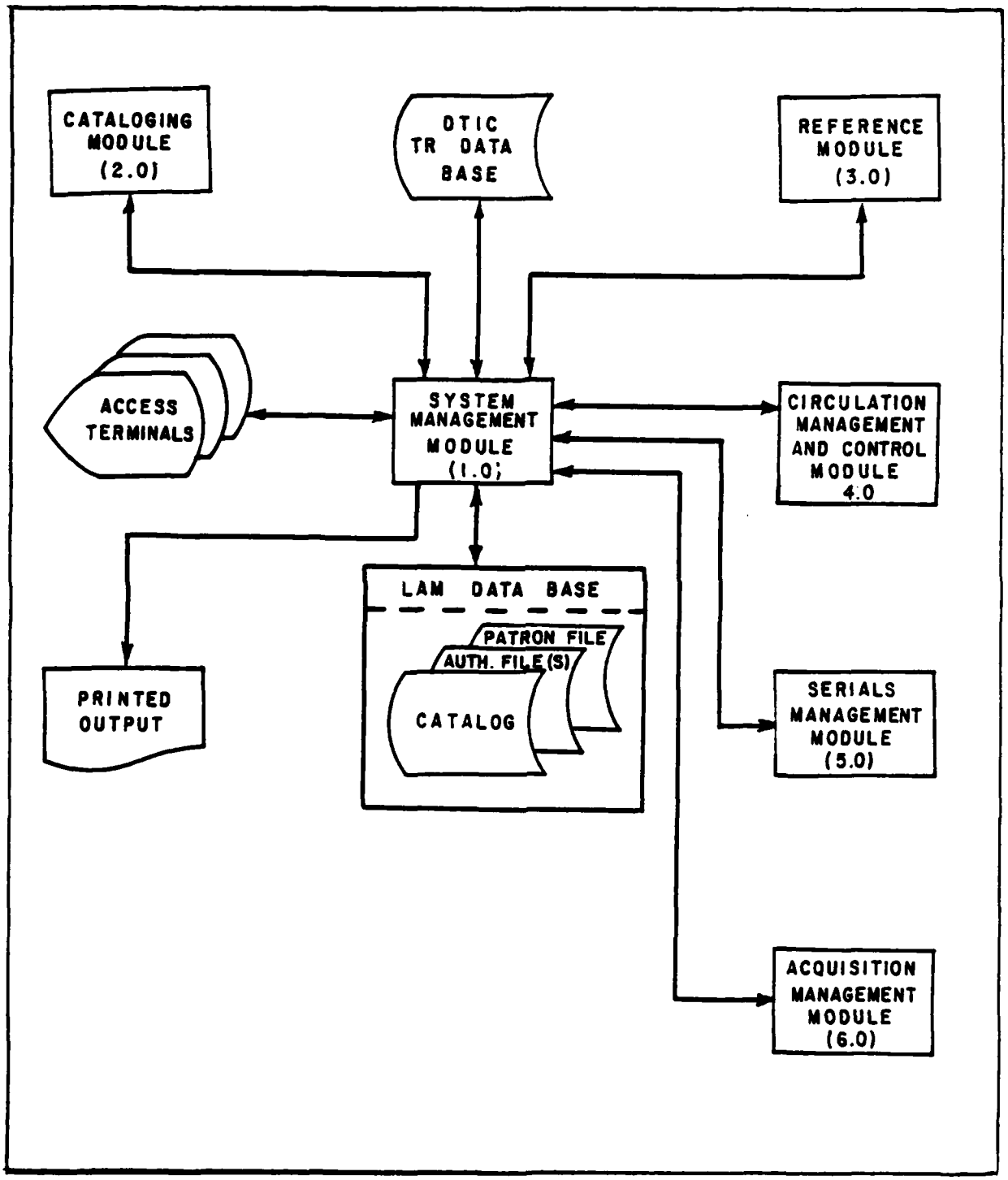
4.2.2 Cataloging (2.0).

Within the Cataloging Module, users create or update bibliographic citations of holdings. Catalog entries created for new holdings and changes in existing entries are transferred to the System Management Module for use in data base updates. Catalog entries modified for submission to the TR data base are also transferred for transmission to DTIC.

4.2.3 Reference (3.0).

Requests for both local catalog and TR data base searches are prepared within the Reference Module and transferred to the System Management Module for processing. Any citations retrieved from the TR data base are converted to the format required by the local system and displayed for the user.

FIGURE 4-1. LOGICAL FLOW AMONG LAM MODULES



4.2.4 Circulation Management and Control (4.0).

Requests for holding status and verification of patron need-to-know are originated by the library staff for processing by the System Management Module. Holding status changes, based on check-in and check-out transactions originated by the library staff, are processed by the System Management Module to update the local catalog and patron files.

4.2.5 Serials Management (5.0).

As serials are received, the library staff enters data on the new holdings for use in updating the local catalog. The Serials Management Module provides the user interface for creating the updates, which are transferred to the System Management Module for actual catalog updating. Recurring reports requested by the library staff are generated by the System Management Module and transferred to the Serials Management Module for use in identifying serials claims.

4.2.6 Acquisition Management (6.0).

As holdings are ordered or received, the library staff creates preliminary catalog records identifying new or ordered holding status and skeletal citation data (descriptive bibliographic data). These data are transferred to the System Management Module for use in updating the local catalog. Without the Acquisition Management Module, the library staff must use the Cataloging Module capabilities to create preliminary catalog records for recent acquisitions and for holdings on order.

4.3 System Data.

Included in this subsection is a description of the inputs, outputs, and data base of the LAM.

4.3.1 Inputs.

The Hierarchy-Input-Process-Output (HIPO) charts in subsection 4.4 show all LAM inputs, numbered sequentially within each module. These reference

numbers appear in the lower right-hand corner of each symbol in the "Input" section of each chart. The HIPO charts portray the relationship between inputs and their associated processes and outputs.

The characteristics of each data input, including the input name, HIPO reference number, means of entry/initiation, expected volume or frequency, priority, source, form at source, disposition of source, and security classification are shown in Table 4-1. The data elements that make up each input are listed in Appendix A and described in Appendix B.

4.3.2 Outputs.

The HIPO charts in subsection 4.4, also show all LAM outputs, numbered sequentially within each module. These reference numbers are found in the lower right-hand corner of each symbol in the "Output" section of each chart.

The characteristics of each data output, including the output name, HIPO reference number, means of display or storage, expected volume or frequency, priority, security classification, and use are shown in Table 4-2. The formats of the outputs are described in Appendix C.

4.3.3 Data Base.

The LAM data base will contain three categories of data: catalog/bibliographic, patron, and budget. Catalog data may be stored in both the local system and the DTIC TR data base, although some elements are unique to one site or the other. All catalog citations classified above SECRET (or with dissemination restrictions), as well as all patron and budget data, will be stored at the local site only. Appendix B lists the data elements recommended for the test site data base. The data base is expected to require approximately 350 megabytes of on-line disk storage, including overhead.

TABLE 4-1. LAM INPUTS

FUNCTION/NAME OF INPUT	HIPO. REF. NO.*	MEANS OF ENTRY/ INITIATION	EXPECTED VOLUME OR FREQUENCY	PRIORITY	SOURCE	FORMAT SOURCE	DISPOSITION OF SOURCE	SECURITY CLASSIF.	CONSTITUENT DATA ELEMENTS
Cataloging									
Search Parameters	2.1		150-225 searches/week	Routine	Library Staff	Keyboard Entry	Discarded	Secret***	
DTIC TR Data Base	2.2		150-225 searches/week	Routine	DTIC	Magnetic Disk	Saved by DTIC	Secret	
Citation Revisions	2.3		50-75 revisions/week	Routine	Library Staff	Hard Copy	Discarded	Secret***	
Cataloging Data	2.4		75-125 records/week	Routine	Library Staff	Hard Copy	Discarded	Secret***	
Citation Revisions	2.5		25-50 revisions/week	Routine	Library Staff	Hard Copy	Discarded	Secret***	
Local Catalog File	2.6		25-50 records/week	Routine	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	
DTIC Citation Temporary File	02.2 **		50-75 records/week	Routine	TR Data Base	Magnetic Disk	Saved by DTIC	Secret	
Local Citation Temporary File	02.3 **		75-125 records/week	Routine	LAN Data Base	Magnetic Disk	Saved or deleted	Secret	
" " " "	"		75-125 records/week	Routine	DTIC Citation Temp. File	Magnetic Disk	Saved or deleted	Secret***	
Reference									
DTIC TR Data Base	3.1		175-350 "transmits"/week	High Priority	DTIC	Magnetic Disk	Saved by DTIC	Secret	
Search Parameters	3.2		175-350 "transmits"/week	High Priority	Library Staff	Keyboard Entry	Discarded	Secret***	
Search Parameters	3.3		200-500 patron inq./week	High Priority	Library Staff	Keyboard Entry	Discarded	Secret***	
Local Catalog File	3.4		200-500 patron inq./week	High Priority	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	
DTIC Citation Temporary File	03.2 **		125-300 records/week	High Priority	TR Data Base	Magnetic Disk	Saved or deleted	Secret***	
Local Citation Temporary File	03.5 **		1100-2800 records/wk	High Priority	LAN Data Base	Magnetic Disk	Saved or deleted	Secret***	
Circulation									
Search Parameters	4.1	Initiated	100-300 searches/week	High Priority	Library Staff	Magnetic Disk	Discarded	Secret***	See
Local Catalog File	4.2	by	100-300 searches/week	High Priority	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	Appendix
Patron File	4.3	operator	25-90 searches/week	High Priority	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	A
Holding and Patron Data	4.4	request	200-400 inputs/week	High Priority	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	
Report Request	4.5	from a terminal	1 report request/mo	Routine	LAN Data Base	Magnetic Disk	Saved Locally	Unclassified	
Serials Management									
Serial Receipt Data	5.1		125-150 inputs/week	Routine	Library Staff	Hard Copy	Discarded	Unclassified	
Publication Schedule	5.2		1 input/month	Routine	LAN Data Base	Magnetic Disk	Saved Locally	Unclassified	
Local Catalog File	5.3		1 input/month	Routine	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	
Local Catalog File	5.4		125-150 inputs/week	Routine	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	
Acquisitions									
Search Parameters	6.1		25-50 searches/week	Routine	Library Staff	Keyboard Entry	Discarded	Secret***	
Local Catalog File	6.2		25-50 searches/week	Routine	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	
DTIC TR Data Base	6.3		25-50 searches/week	Routine	DTIC	Magnetic Disk	Saved by DTIC	Secret***	
Budget File	6.4		25-50 searches/week	Routine	LAN Data Base	Magnetic Disk	Saved Locally	Secret***	
Cataloging Data	6.5		20-40 records/week	Routine	Library Staff	Hard Copy .	Discarded	Secret***	

* Reference numbers are taken from diagrams in Section 4.2, "System Logical Flow."

** All entries in this column refer to inputs, except those preceded by "O", which are outputs used in a subsequent function as inputs.

*** Selected holding titles and descriptors are SECRET; all other fields are unclassified except when combining two unclassified

TABLE 4-2. LAM OUTPUTS

FUNCTION/NAME OF OUTPUT	HIPO REF. NO.*	MEANS OF DISPLAY OR STORAGE	EXPECTED VOLUME OR FREQUENCY	PRIORITY	SECURITY CLASSIF.	USE OF OUTPUT
Cataloging						
TR Citations	2.1	Screen Display	50-75 records/week	Routine	Secret	To create a local catalog record
TR Citation Temporary File	2.2	Magnetic Disk	50-75 records/week	Routine	Secret	To create a local catalog record
Local Citation Temporary File	2.3	Magnetic Disk	50-75 records/week	Routine	Secret**	To create a local catalog record
Updated TR Data Base	2.4	Magnetic Disk	25-50 records/week	Routine	Secret	To create a local catalog record
Reference						
TR Citations	3.1	Screen Display	175-300 records/week	High Priority	Secret	To determine if requested holdings
TR Citation Temporary File	3.2	Magnetic Disk	125-300 records/week	High Priority	Secret	are available locally or from DTIC
TR Citations	3.3	Hard Copy	125-300 records/week	High Priority	Secret	To determine if requested holdings
Local Citations	3.4	Screen Display	2200-5700 records/week	High Priority	Secret**	are available locally or from DTIC
Local Citation Temporary File	3.5	Magnetic Disk	1100-2800 records/week	High Priority	Secret**	To determine if requested holdings
Local Citations	3.6	Hard Copy	1100-2800 records/week	High Priority	Secret**	are available locally or from DTIC
Circulation Management						
Holding Status & Location	4.1	Screen Display	100-300 searches/week	High Priority	Secret**	To locate a holding
Access Verification	4.2	Screen Display	25-90 searches/week	High Priority	Unclassified	To maintain records of materials checked
Charge-out Receipt/Accountability Record	4.3	Hard Copy	50-150 receipts/week	High Priority	Secret**	into and out of the local library
Updated Local Catalog	4.4	Magnetic Disk	check-outs/week	High Priority	Secret**	into and out of the local library
Updated Patron File	4.5	Magnetic Disk	200-400 check-ins and	High Priority	Secret**	To maintain records of materials checked
Down-grade/Destruction Schedule	4.6	Hard Copy	1 report/month	Routine	Secret**	To downgrade and declassify local holdings
Serials Management						
Local Catalog Temporary File	5.1	Magnetic Disk	125-150 records/week	Routine	Secret**	To record arrival of serial issues
Serial Claims Report	5.2	Hard Copy	1 report/month	Routine	Unclassified	To identify serial claims
Serial Routing List	5.3	Hard Copy	125-150 lists/week	Routine	Unclassified	To circulate serials
Acquisition Management						
Duplicate Check Results	6.1	Screen Display	25-50 searches/week	Routine	Secret**	To check for holding and order duplication
Local Catalog Temporary File	6.2	Magnetic Disk	20-40 searches/week	Routine	Secret**	To create a preliminary local catalog entry
Updated Budget File	6.3	Magnetic Disk	20-40 searches/week	Routine	Secret**	To store current acquisition/budget data
Management Reports						
Statistical Report	1.8	Hard Copy	1 report/month	Routine	Unclassified	To determine level of library usage and activity
Report/Document Number Index	1.8	Hard Copy	1 report/week	Routine	Secret**	To provide hard copy reference documents
Subject Heading Index	1.8	Hard Copy	1 report/week	Routine	Secret**	for use when the system is not available
Certified Destruction Report	1.8	Hard Copy	1 report/month	Routine	Secret**	To identify documents scheduled to be destroyed

* Reference numbers are taken from diagrams in Section 4.4, "Program Descriptions."

** Selected holding titles and descriptors are SECRET; all other fields are unclassified except when the combination of two unclassified fields results in the formation of classified information.

The following schedule of data retention is recommended:

- Catalog data should be retained for the life of the holding. If a library is required to maintain records for past holdings, an inactive catalog file can be established.

- Patron data should be retained while the patron has access rights to library holdings or while holdings are charged to the patron, whichever is longer.

- Budgetary data should be retained indefinitely, although data from past years that is not accessed frequently can be stored in an inactive file.

4.4 Program Descriptions.

The remainder of this section consists of descriptions of the processes to be implemented by the LAM applications programs. The descriptions include input-process-output charts. These charts were developed by means of the HIPO design method. This method employs a series of charts depicting the processing flow for a system from inputs, through the processing steps contained in the application, to the generation of outputs. The charts are organized by a system hierarchy that reflects the decomposition of the system into constituent modules. These modules are broken down into constituent functions which are further broken down into processes or programs. The system hierarchy chart also serves as a directory or road map for the system, linking all system components together. Figures 2-1 through 2-7 in subsection 2.2 are the hierarchy charts for the LAM.

A numbering convention is used to identify all system components in the hierarchy and to aid in the identification of component relationships. For example, the System Management Module is numbered "1.0," with all constituent functions numbered 1.1 through 1.12.

When design details are added beyond the "function" level, the numbering scheme is extended as follows. Processes or programs within the function are

numbered to reflect the function number combined with a process or program sequence number (e.g., processes or programs within the function "Create or Update a Catalog Entry (2.5)," a function contained within the Cataloging module (2.0), would be numbered 2.5.1 through 2.5.X, where "X" depends on the number of processes or programs documented within the function). Appendix D describes the format used for depicting process and logical flow, and defines the symbols used.

4.4.1 Management Module (1.0).

The processing steps depicted in Figure 4-2 are described in this subsection.

4.4.1.1. Log-On System Users (1.1).

Input. The user enters his password and user-identification to gain access to the system.

Processing Steps. The password and user identification are verified with the LAM Authority Access List stored in the system. If they are accepted, usage rights are established, transaction and statistical files are updated, and the system console operator is notified of the user access. If the log-on is unsuccessful, the system console operator is notified of the unsuccessful attempt, and the transaction and statistical files are updated. The potential user is allowed "n" attempts to enter the system. After "n" attempts, the system prevents further log-on attempts until action by the system operator. The value of "n" is set by the system manager.

Output. The log-on results, as transmitted to the user's terminal, are the outputs of this process.

4.4.1.2 Select Process to be Performed (1.2).

Input. The user selects the type of process to be performed by entering the required parameter.

FIGURE 4-2. SYSTEM MANAGEMENT MODULE HIPO CHART

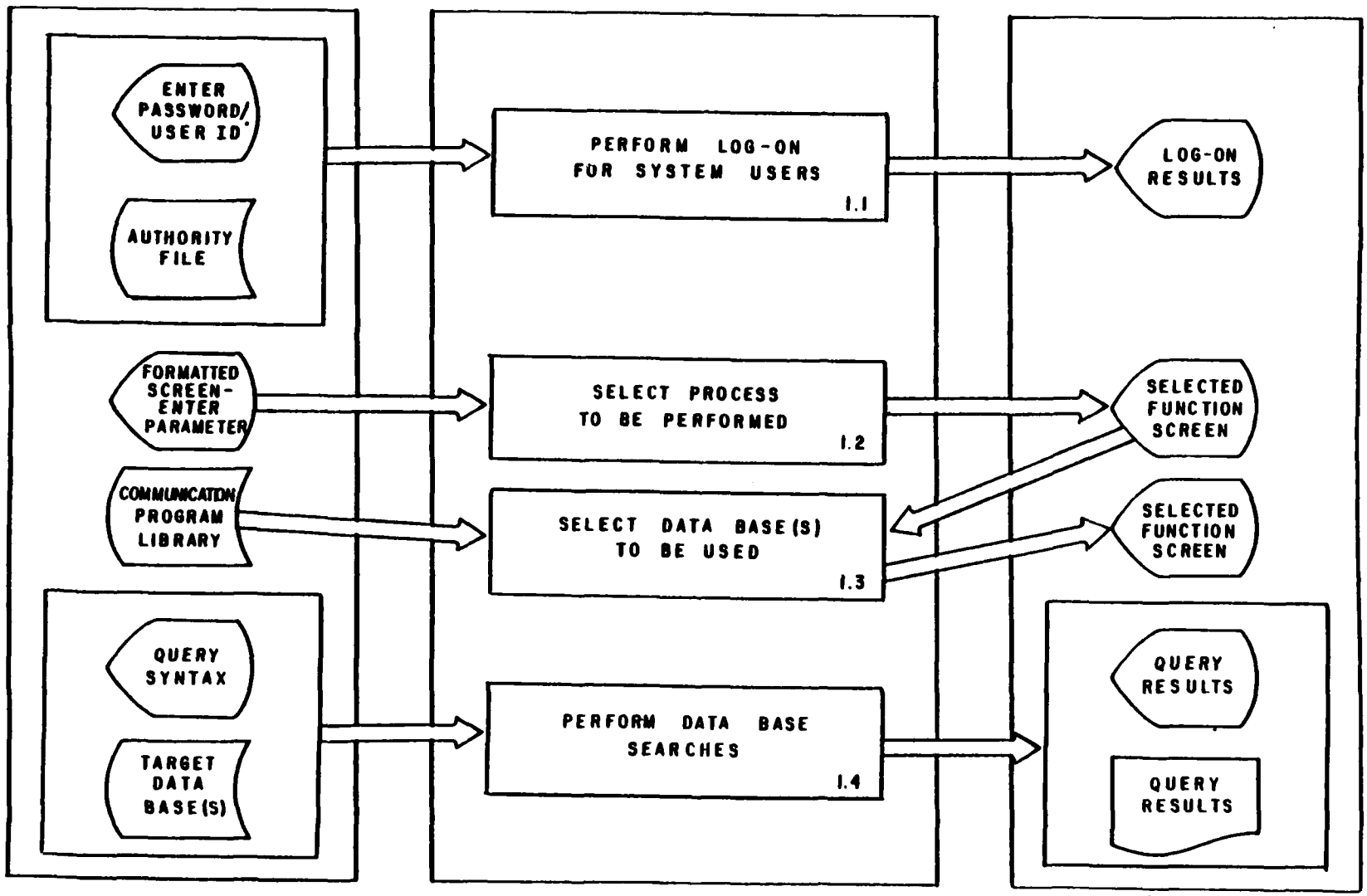


FIGURE 4-2. SYSTEM MANAGEMENT MODULE HIPO CHART (Continued)

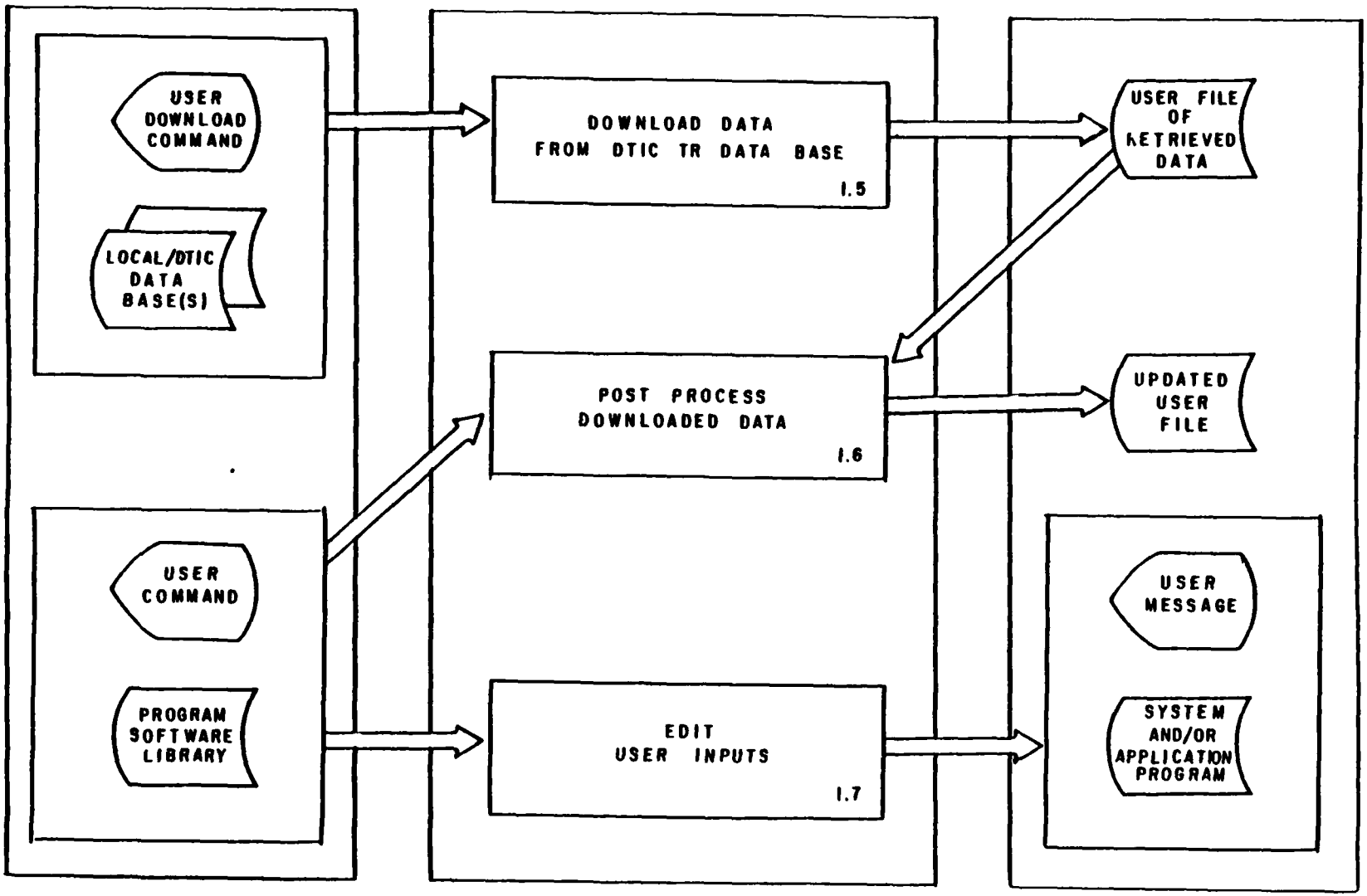


FIGURE 4-2. SYSTEM MANAGEMENT MODULE HIPO CHART (Continued)

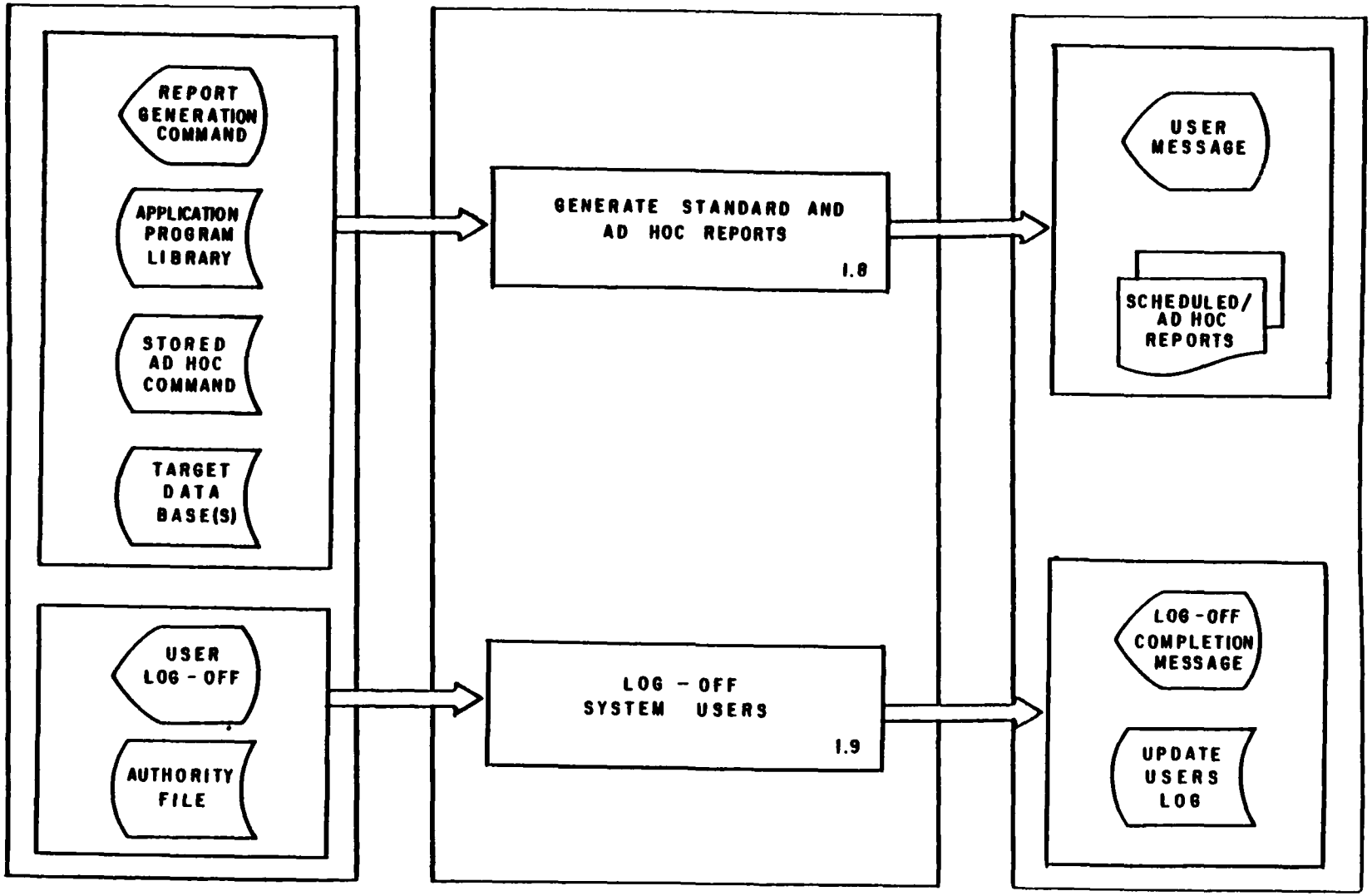


FIGURE 4-2. SYSTEM MANAGEMENT MODULE HIPO CHART (Continued)

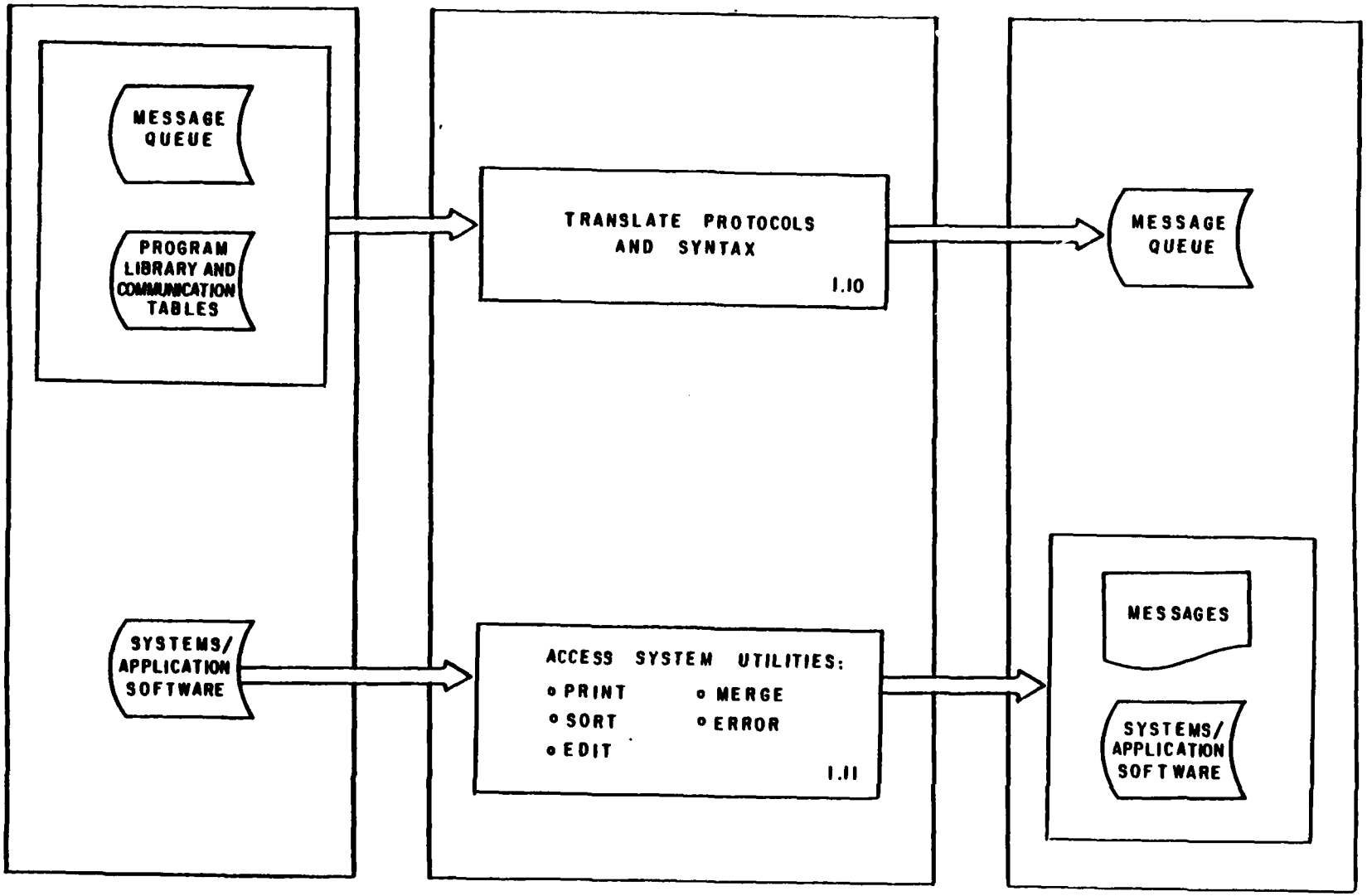
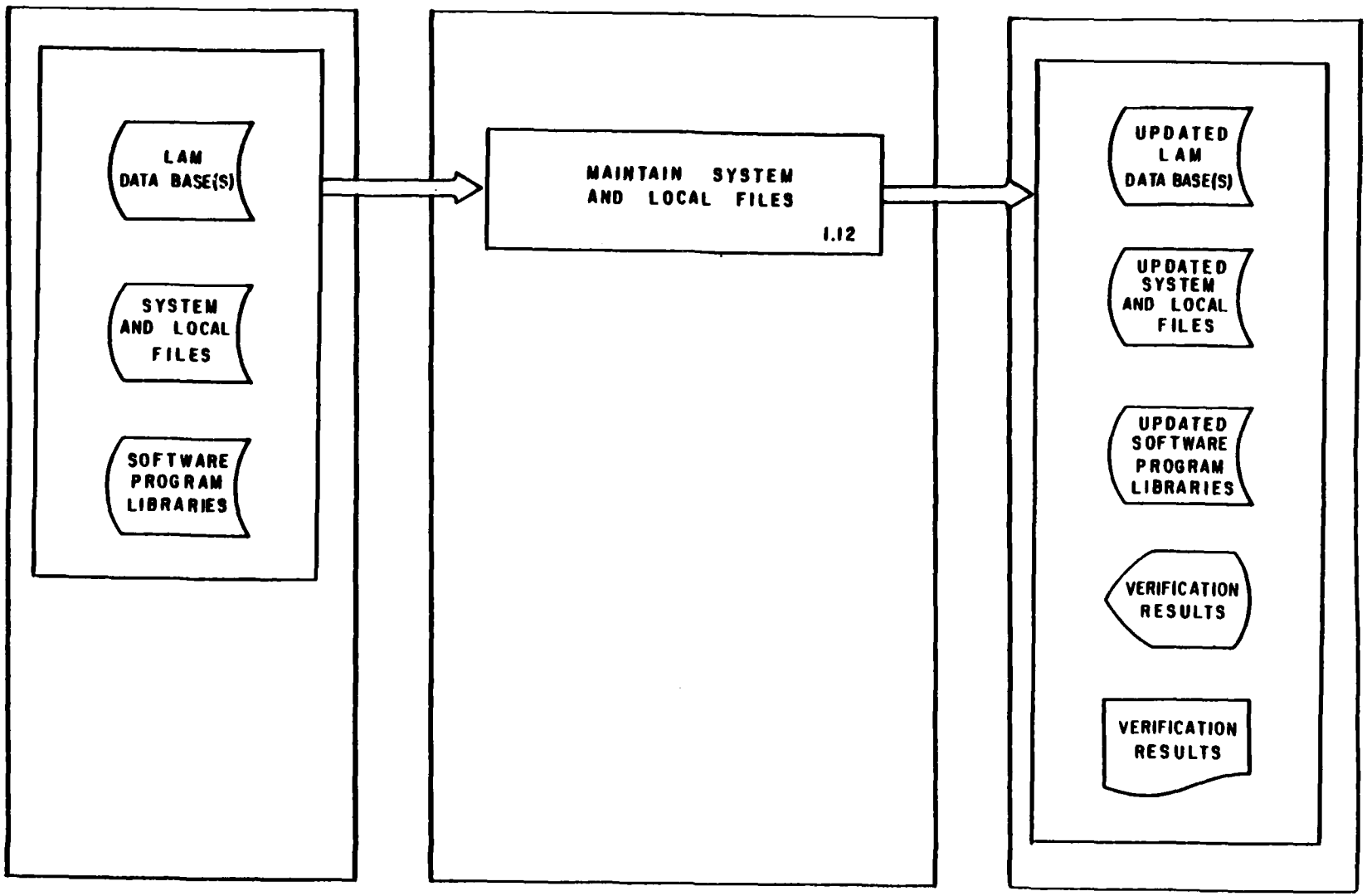


FIGURE 4-2. SYSTEM MANAGEMENT MODULE HIPO CHART (Continued)



Processing Steps. After successful log-on, the system presents at the user's terminal a formatted screen containing a list of available options and instructions for making a selection. The parameter entered by the user to indicate his choice is read by the system, matched against the valid options, and rejected if invalid. If the parameter is rejected, the system prints the invalid parameter with an error message asking the user to re-enter his request. If the parameter is accepted, system usage tables are updated, and the processing choices available to the user are printed on the screen.

Output. A screen format presenting the selections available to the user is the process output.

4.4.1.3 Select Data Base (1.3).

Input. The user enters the appropriate parameters, thus selecting the data base or data bases to be searched.

Processing Steps. After selecting the type of processing to be performed, as described in subsection 4.4.1.2, the user is presented with a formatted screen that lists the data bases available (local and DTIC TR). The screen provides instructions on making a selection and prompts the user for a response. If an invalid response is entered, an error message appears, asking the user to re-enter his request. If a valid parameter is entered, system software extracts user access information and communication protocol specifications, and evokes software routines for accessing the data base(s) selected. Software also verifies line, computer, and data base status, initiates polling and, using the user's access authority, performs the user log-on and establishes usage rights. A message is printed at the user's terminal, indicating the status of this activity.

Output. A screen format informing the user whether he has gained access to the requested data base(s) is the process output.

4.4.1.4 Perform Data Base Search (1.4).

Input. The user selects the type of search to be performed and enters the required search parameters. The local data base and the TR data base are the input files for the search.

Processing Steps. The user enters the required search parameters at his terminal, using the LAM command language. Edit routines read and validate the search. Errors are rejected, and a message is sent to the user indicating the nature of the error. If requested by the user, the search is translated into two language protocols: one for local searching, the other for DTIC searches. The two searches are transmitted and, when both searches are complete, a message is sent to the user providing the option of reviewing search results or refining the query. All present DROLS capabilities are available through LAM. This search routine may be called by any of the other LAM modules.

Output. The records retrieved from the search or a message indicating the results of the search are displayed at the user's terminal.

4.4.1.5 Download Data from DTIC (1.5).

Inputs. The data retrieved from a search and the commands issued to store the records are inputs to this process.

Processing Steps. Once a search is complete, the retrieved records can be downloaded and stored at the local site. To initiate this process, the user enters the download command, which is then read and verified by the system. If a syntax error is found, a message is sent to the terminal requesting that the user re-enter the command. A successful command evokes software that extracts the retrieved data and places the data in a local user file. The user can add data to this file, allowing the accumulation of data from multiple sources or sessions. LAM software opens and closes files, verifies and cancels usage rights, and provides error and session termination

messages. This processing step may be called by the Cataloging and Reference Modules.

Output. The output of this process is a user-defined file of downloaded data.

4.4.1.6 Postprocess Downloaded Data (1.6).

Input. A user-defined file of downloaded data and the commands to process it are the inputs to this process.

Processing Steps. The postprocessing capability allows the user to sort and reformat the retrieved data from bibliographic searches of the local catalog and DTIC TR data base in a sequence that facilitates on-line review. The user can then delete or modify the data as necessary. The modified data can be stored for future use or deleted. This process may be called by the Cataloging and Reference Modules.

Output. This process results in files of postprocessed data.

4.4.1.7 Edit User Inputs (1.7).

Input. Commands using the LAM command language are inputs to this process.

Processing Steps. Whenever the user enters a statement using the LAM command language, this module edits and analyzes the command syntax. In editing the command statement, appropriate messages are issued, explaining any errors to the user. This module also condenses the command statement into a simple machine-like statement that can be easily parsed. Once parsed, the statement is executed using the selected data base. If both the LAM and TR data bases are selected, the syntax translator creates command statements for both data bases using language, system protocol, and syntax tables contained within the LAM. The translated command statements are then ready to be transmitted. Whenever data are entered by means of any of the LAM modules, this edit routine is used.

Output. A translated command statement or set of statements is produced by this process.

4.4.1.8 Generate Standard and Ad Hoc Reports (1.8).

Input. LAM and DTIC data bases processed by report programs are the input for this process.

Processing Steps. Two types of reports may be generated: ad hoc reports and standard or regularly scheduled reports. Ad hoc reporting provides library personnel with the ability to respond to requests or acquire information in a logical format that would not otherwise be easily obtainable. Ad hoc reports are to be produced in an interactive mode, allowing library personnel to input, modify, or delete parameters that dictate how the report will be developed. Data elements will be choosen from tables, files, and data bases accessible by LAM software. Data not directly accessible by LAM software may be read and stored, and drawn upon at report production time. The ad hoc commands used to generate reports may be deleted or stored in LAM software libraries for future use. Output from these newly created programs may be a CRT display or hard copy (e.g., paper, microfiche).

Standard reports necessary to monitor the local libraries' functions and activities will be included in the system design. Report names and sample reports appear in Appendix C. These reports will be developed before implementation, by means of the LAM's report writer language or a procedural language that can interface with LAM software. Although these reports will normally be generated by the computer operator on a predetermined schedule, a report can be generated at any time. The software commands used to generate these reports will be stored in the LAM program library.

Outputs. The outputs of this process are both regularly scheduled and ad hoc reports.

4.4.4.9 Log-Off System Users (1.9).

Input. A log-off command issued by the user is the input to this process.

Processing Steps. Log-off is the last activity that the user must complete before exiting the system. To log-off, the user must enter the systems log-off command. Software validation routines then verify that the command is correct. If the command is incorrect, a message is printed on the CRT screen, and the user re-enters the command. Once the log-off command has been accepted, log-off routines cancel the user's access rights, close user and system files, update usage files, issue system completion code, and notify the system user and operator that processing has ended.

Output. The output of this process is a message to the user's and system operator's terminal, reporting that the user session has ended.

4.4.1.10 Translate Protocols and Syntax (1.10).

Input. The inputs to this process are parsed command statements or message texts in the system's message queue.

Processing Steps. The communications protocol and terminal interface software accepts the parsed user command or text from the system message queue and transmits these data to the target system. Software routines prepare these data to DTIC transmission specifications. The software also initiates the network connection, invites the Univac system to poll, performs status checking, and performs error detection and recovery. The Univac system is expecting transmissions from a Univac CRT terminal that has a direct, synchronous, 2400-baud line capable of transmitting encrypted classified data. This software must perform that emulation. Finally, the software packages these data for transmission, adhering to predefined levels of communication. Message and queue management activities are monitored to route traffic to and

from the appropriate LAM users. This processing step is used by the Cataloging and Referencing Modules.

Outputs. The outputs of this process are processed data to be transmitted to the target system or system message queue.

4.4.1.11 Access System Utilities (1.11).

Input. The inputs to this process are system software and unprocessed data.

Processing Steps. The LAM performs activities common to all information management systems, including sorting and merging data, capturing error codes, and printing error messages. The software selected for the LAM will provide these capabilities or be compatible with other commercially available software that can provide the capabilities.

The sort/merge software will support sorting and merging bibliographic data on key text fields (e.g., author, date, title). The system must be able to read parameters supplied by users, check the parameters for errors, issue error messages if necessary, and store the user's request (parameters) for the length of the user's terminal session. This capability must be available in on-line-interactive and batch modes. Errors in software, data entry, and parameters entered into the system must be captured and identified by the LAM software or its complementary software and explained to the user by means of error messages transmitted to the user's terminal.

Output. The outputs of this process are processed data and system messages.

4.4.1.12 Maintain System and Local Files (1.12).

Input. The inputs to this process are local data base, system files, and programs.

Processing Steps. To minimize the amount of time lost to damage or errors in the data base and its associated software or hardware, back-up copies of files, software utility programs and procedures will be created and maintained. These utilities must either be part of the LAM's hardware operating system or be purchased before system implementation. These activities will include the following:

- A copy software program -- used to create an image of the data base(s), system and local files, and software program libraries. One or more back-ups can be created on magnetic disk or tape. To ensure the integrity of these back-ups, a version number will be assigned to each copy. The method used to number each version should differentiate a normal back-up (e.g., original data base and the fifth periodic back-up, Version 1.5) from a major revision (e.g., Version 2.0). These back-ups will be stored in a safe area to prevent loss or damage. Procedures such as how often the data base will be backed up, by whom, how many versions will be kept, where the back-up versions will be archived, purge dates, and documentation (audit trail) of the contents of each version -- will be decided by the operations support organization. All back-ups of the data base will be created with password protection to ensure that the proper access with read-only permission is granted. The back-up software and its job control language should be kept as a cataloged procedure to ensure the integrity and security of the data base.

- Hardware system verification -- sometimes referred to as preventive maintenance (PM). This software is designed to determine whether the components of a computer are operating properly. PM programs should be run on a scheduled basis. This activity is usually conducted by the hardware vendors or computer operations personnel and aids in instituting recovery procedures.

- Transaction logging -- used to identify and record the types of transactions processed and to note whether these transactions were completed successfully. This information may be recorded on magnetic disk or tape. Any losses in the data base may be captured by means of this transaction file and the current back-up copy of the data base. This transaction file must be protected, as noted earlier in this section.

- Verification of physical data base structure -- used to verify the physical structure (addresses, lists, pointers) of the LAM data base(s).

These utilities should be run on a scheduled basis and at any time that the data base is believed to be damaged. In the event of damage, information obtained from this utility will aid in determining which recovery procedure

should be implemented, thus ensuring a quick recovery and maintaining confidence in the data base. These utilities and their job control language should be kept as a cataloged procedure to ensure the integrity and security of the data base.

Output. The outputs of this process are current versions of all local files, including data base, program library, and communication files, as well as hardware and software verification results.

4.4.2 Cataloging Module (2.0).

The processing steps depicted in Figure 4-3 are described in this subsection.

4.4.2.1 Search the DTIC TR Data Base (2.1).

Input. The user selects the type of search to be performed and enters the required search parameters. The TR data base is the input file for the search.

Processing Steps. Search parameters entered by the user are transmitted via DROLS to DTIC. Protocol and syntax conversion is performed before transmission. The TR data base is searched by means of the capabilities provided by DROLS. Users can transfer data found in the search to the local system. Copies of documents found in the search may be ordered.

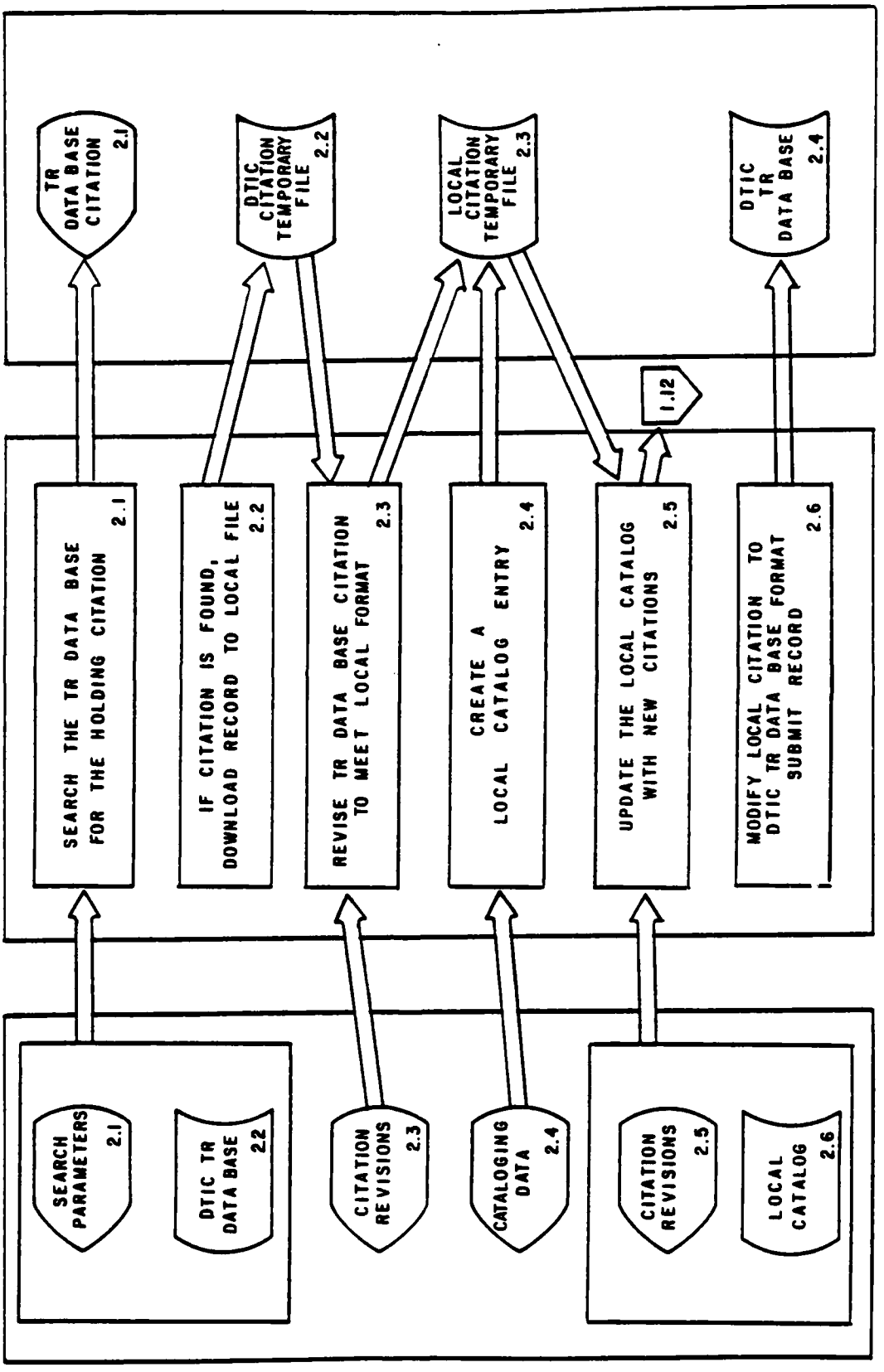
Output. Results of the search are TR data base citations displayed on the user's terminal screen. Search results can also be printed at the user site.

4.4.2.2 Download TR Data Base Records (2.2).

Input. The TR data base records retrieved in the preceding processing step (4.4.2.1) are the inputs.

Processing Steps. The retrieved records are transferred to a temporary file in the local system, using the syntax and protocol translator to reformat the data to match local characteristics.

FIGURE 4-3. CATALOGING MODULE HIPO CHART



Output. The output is a local file containing TR data base citations retrieved in the preceding search.

4.4.2.3 Modify TR Data Base Records (2.3).

Input. TR data base records that were previously downloaded to a local file are inputs.

Processing Steps. These records are augmented and revised by the user to conform to the local format and are then stored in a local file.

Output. A temporary file of citations that conform to the local format is the output.

4.4.2.4 Create or Update Catalog Entry (2.4).

Input. For a holding that is not found in the TR data base, an original citation is created at the local site and serves as the input. For a holding that is already stored in the local catalog requiring an update, its record is the input.

Processing Steps. For original citations, the user enters the entire citation using a local temporary file. For existing citations, the user enters only the revised fields.

Output. The output is an temporary citation file containing the records for the cataloged holdings.

4.4.2.5 Update the Local Catalog (2.5).

Input. Records stored in the temporary citation file are the input.

Processing Steps. The computer operator runs an update routine that loads records from this file to the LAM catalog. After the routine has been run successfully, the new records are accessible to the user.

Output. The process produces an updated local catalog.

4.4.2.6 Submit a Citation for TR Data Base Entry (2.6).

Input. To create a citation for the TR data base, the corresponding citation from the local catalog is accessed and serves as the process input.

Processing Steps. The local citation is then modified by the user to conform to the TR data base format and is transmitted to DTIC via DROLS for inclusion in the TR data base.

Output. The process produces records, which DTIC uses to update the TR data base.

4.4.3 Reference Module (3.0).

The processing steps depicted in Figure 4-4 are described in this subsection.

4.4.3.1 Search the TR Data Base (3.1).

Input. The user selects the type of search to be performed and enters the required search parameters. The TR data base is the input file for the search.

Processing Steps. Search parameters entered by the user are transmitted via DROLS to DTIC. Protocol and syntax conversion precedes transmission. The TR data base is searched by means of the capabilities provided by DROLS. Users can transfer data found during the search to the local system. Copies of documents found in the search may be ordered.

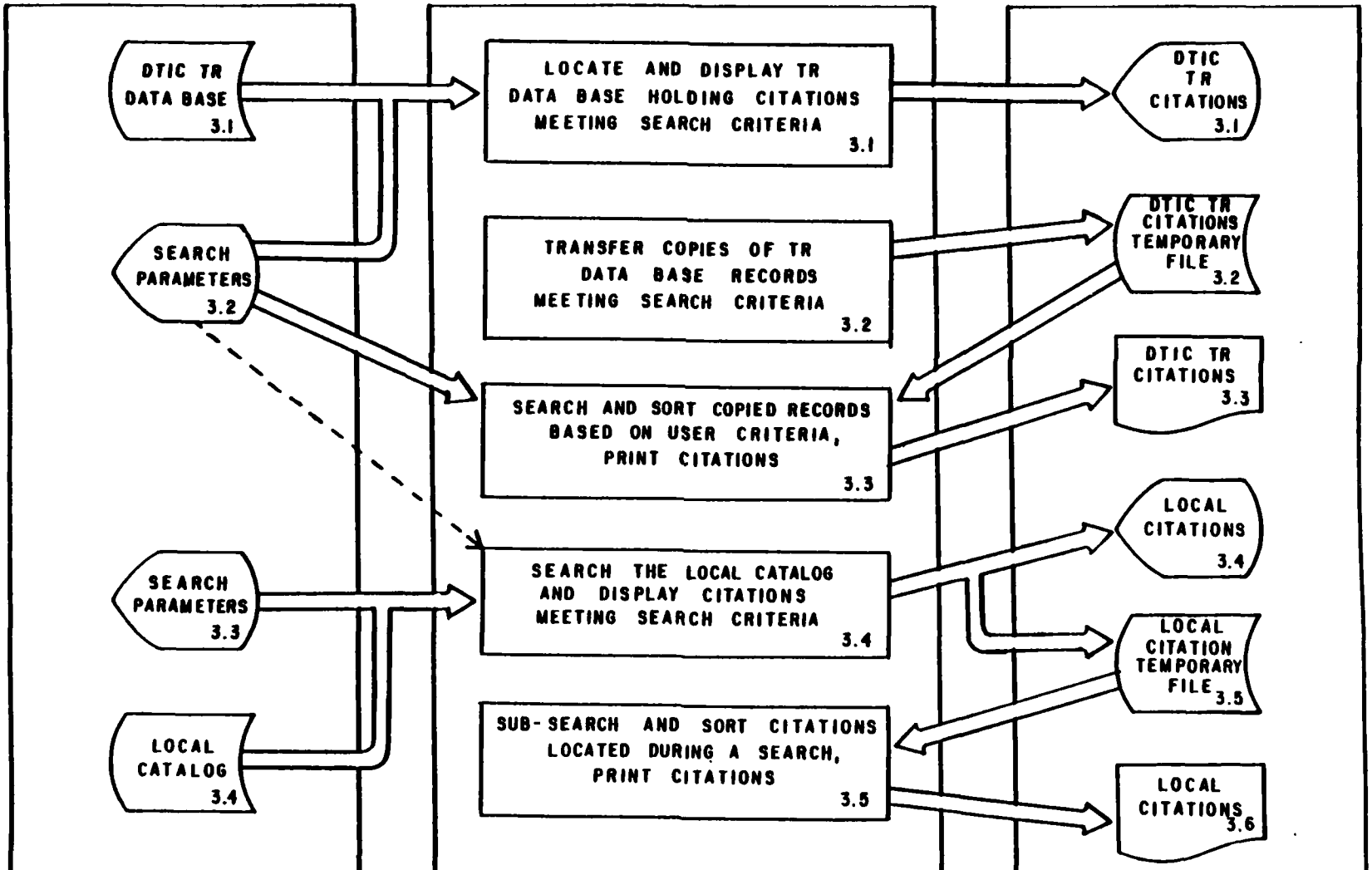
Output. Results of the TR data base search are displayed on the user's terminal screen. Search results can also be printed at the user site.

4.4.3.2 Download TR Data Base Citations (3.2)

Input. The TR data base records meeting the previously selected search criteria are inputs.

Processing Steps. At the request of the user (in response to a system query appearing on the user's terminal screen), holding citations found during a search of the TR data base are transferred to a temporary citation file in the local system. The data are translated, by means of the syntax and protocol translator, to the format required by the local system.

FIGURE 4-4. REFERENCE MODULE HIPO CHART



Output. A temporary file in the local system containing citations found during the TR data base search is the process output.

4.4.3.3 Subsearch and Sort Downloaded Citations (3.3).

Input. The temporary file downloaded from the TR data base and user-specified search and sort parameters are the inputs.

Processing Steps. With the parameters selected by the user, the temporary file containing TR data base citations can be sorted or sub-searched. The sort routine contained in the System Management Module is used to perform the specified sorts. In addition, these citations can be reformatted, selectively deleted by the user, merged with local catalog search output, retained for later, or printed for patron use.

Output. Process output consists of the TR data base sorted to user specifications or the citations meeting subsearch criteria. The output is provided on a hard-copy report printed at the local system.

4.4.3.4 Search the Local Catalog (3.4).

Input. Process inputs consist of the local catalog file and user-specified search parameters entered from the terminal keyboard.

Processing Steps. The local catalog may be searched by author, subject, title, local or DTIC accession number, publication date, or security classification (as a search limiter). The search is performed on-line with the routines resident in the System Management Module.

Output. A temporary file of citations extracted from the local catalog meeting the search criteria is the process output. If no citations that meet the search criteria are found, a message indicating this is displayed on the user's terminal. Citations may be viewed by the user on the terminal screen.

4.4.3.5 Sub-search and Sort Local Catalog Citations (3.5)

Input. The input to this process is the temporary file containing citations from the local catalog found during a user search, along with sub-search and sort parameters entered by the user from a terminal keyboard.

Processing Steps. Sorts of the file are performed by the sort routine in the System Management Module. The citations in the temporary file are sub-searched by means of criteria selected by the user. Sub-searches can be performed using any of the search keys specified in paragraph 4.4.3.4. The sub-search can be used to further refine the citations that meet more selective user criteria.

Output. Process output consists of a sorted or sub-searched (deleting any citations not meeting sub-search criteria) temporary citation file. Contents of the file can be displayed on the user's terminal screen or printed at the local system site.

4.4.4 Circulation Management and Control Module (4.0)

The following describes the processes depicted in Figure 4-5.

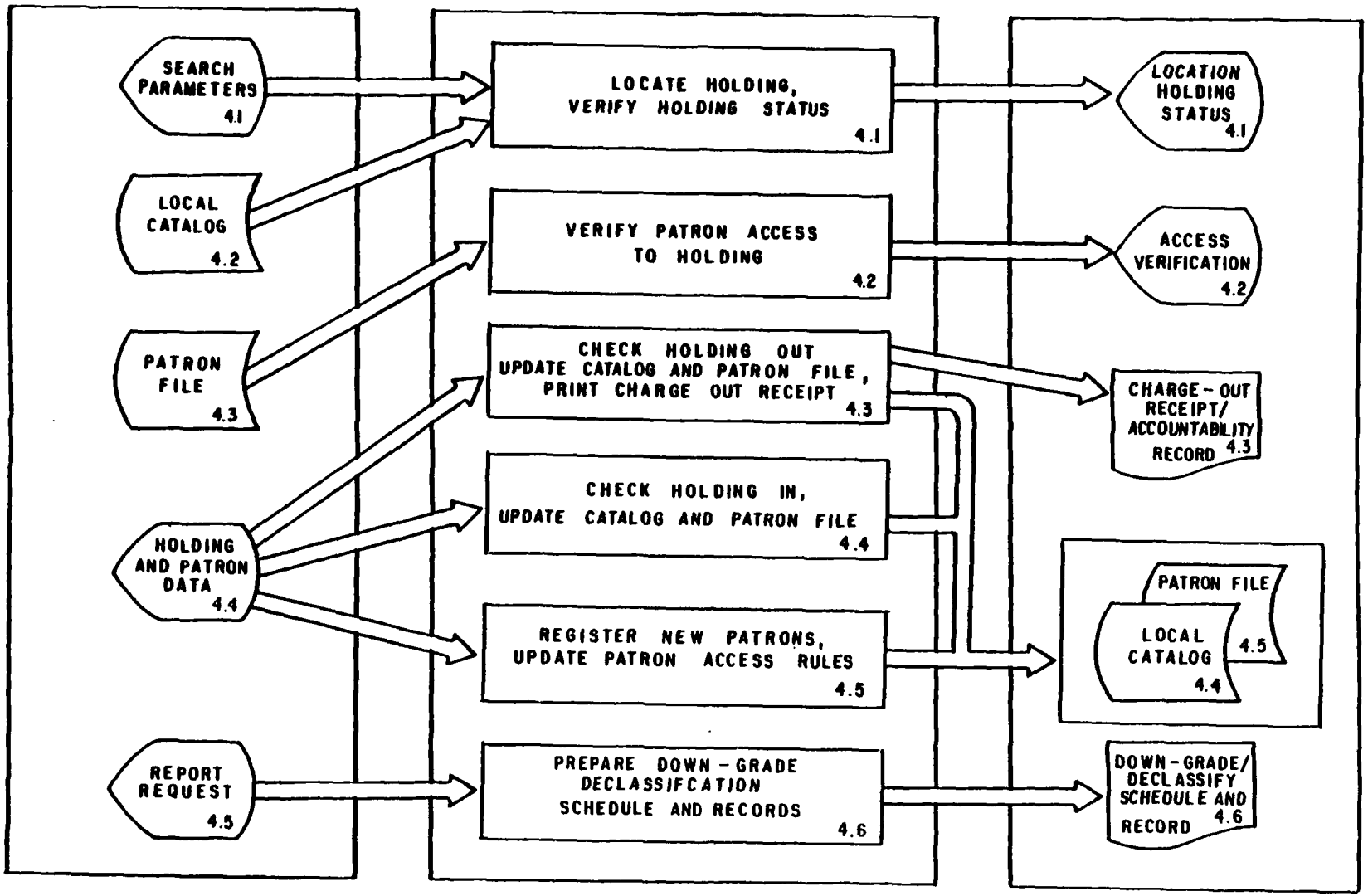
4.4.4.1 Locate Holding and Verify Status (4.1).

Input. The user enters citation data for the holding requested by the patron. The holding can be identified by local accession or call number, author, title, or a combination of these parameters. The local catalog is used to perform the holding status search.

Processing Steps. Using the citation data entered by the user, the local catalog is searched to locate the record for the holding. Data from the holding record is transmitted to the user's terminal screen for use in determining holding status and location.

Output. A terminal screen display containing the status and location of the holding is the process output.

FIGURE 4-5. CIRCULATION MANAGEMENT AND CONTROL MODULE HIPO CHART



4.4.4.2 Verify Patron Access to Holding (4.2).

Input. The library staff member enters the patron identification using a terminal keyboard. Data contained in the patron file are used to verify patron access and clearance.

Processing Steps. With the patron identification entered by the library staff, the patron file is searched to locate data on patron clearance and access to classified holdings.

Output. Data extracted from the patron file are displayed on a terminal screen, enabling the library staff to verify patron access to classified holdings.

4.4.4.3 Check-out Holding and Update Patron File (4.3).

Input. The system user enters the local call or accession number for the holding and the identification of the patron to whom the holding is charged.

Processing Steps. The local catalog record for the checked-out holding is updated to reflect the change in status. The patron file is updated to reflect the release of the holding to the patron.

Output. The catalog and the patron file are updated, and a charge-out slip is printed (for classified holdings only) for signature by the patron who accepts the holding.

4.4.4.4 Check-in Holding and Update Patron File (4.4).

Input. The system user enters the local accession or call number of the holding being returned.

Processing Steps. The catalog and the patron file are updated to reflect receipt of the holding from a patron.

Output. The process produces updates of the catalog and patron file.

4.4.4.5 Register Patrons and Change Patron Access (4.5).

Input. The library staff enters the following data to register a new patron: name, organizational address, patron identification, and security clearance(s). Security clearances must be verified by the cognizant security official before entry into the patron file. For changes in the patron file, the user enters the patron identification along with the changes.

Processing Steps. Data on new patrons are added to the patron file, keyed by patron identification. Approved changes in patron data are made to the patron file. A transaction record of any additions or changes to the patron file is prepared by the system.

Output. Outputs include changes and additions in the patron file, along with a hard-copy report covering all transactions that modify or add data to the patron file. This transaction report is required to track attempts at unauthorized access to security data maintained on the patron file.

4.4.4.6 Prepare Downgrade/Destruction Schedules (4.6).

Input. The user must enter a review date via the terminal keyboard.

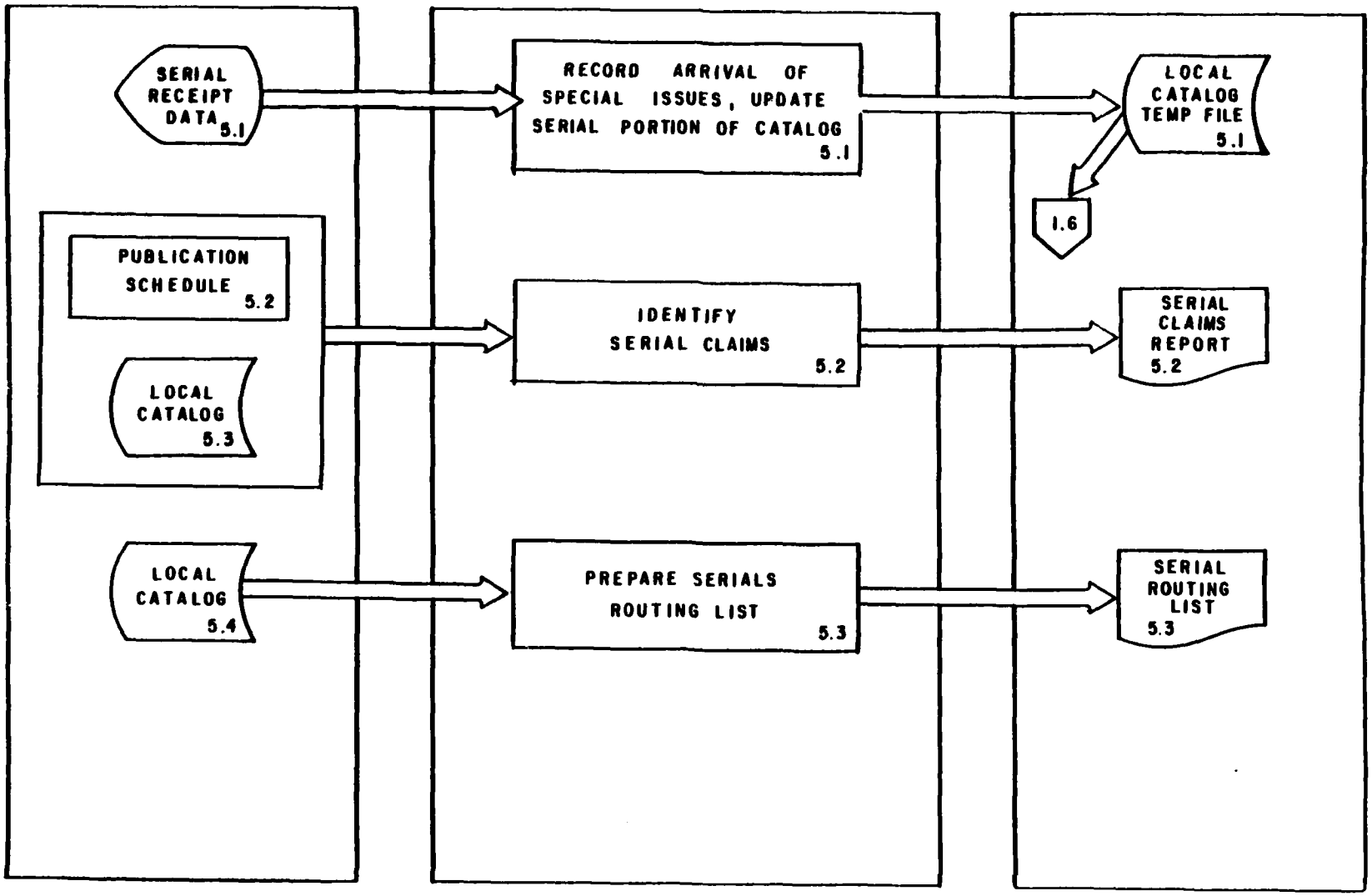
Processing Steps. To determine whether the holding review date for downgrading or destruction is no later than the date specified by the user, each local catalog entry for a classified document is tested. If the test is true, the holding title and local accession or call number are written to a temporary file. If the test is false, the record is skipped.

Output. A hard-copy report, containing the title and local accession or call number of classified documents subject to review for declassification, downgrading, or destruction by the date specified, is printed at the local system, with the temporary file created during the search of the local catalog.

4.4.5 Serials Management Module (5.0).

The processing steps depicted in Figure 4-6 are described in this subsection.

FIGURE 4-6. SERIALS MANAGEMENT MODULE HIPO CHART



4.4.5.1 Track Subscriptions and Update Catalog (5.1).

Input. The user inputs data identifying the serial issues the library has received.

Processing Steps. To reflect receipt of serials, the data are entered into the system by the user.

Output. The process produces updates to the local catalog.

4.4.5.2 Identify Serial Claims (5.2).

Input. From the local catalog, the publication schedule and data about serial issues received are extracted.

Processing Steps. A routine is run, comparing the publication schedule with issues received, to determine whether any serials have not been received.

Output. This process produces a serial claims report, which lists all serials that are due and unaccounted for.

4.4.5.3 Prepare Serials Routing Lists (5.3).

Input. Data from the local catalog serve as input to this process.

Processing Steps. As serials arrive, a member of the library staff initiates a program to produce the routing list for that serial, using data from the local catalog.

Output. From this process, serials routing lists are generated.

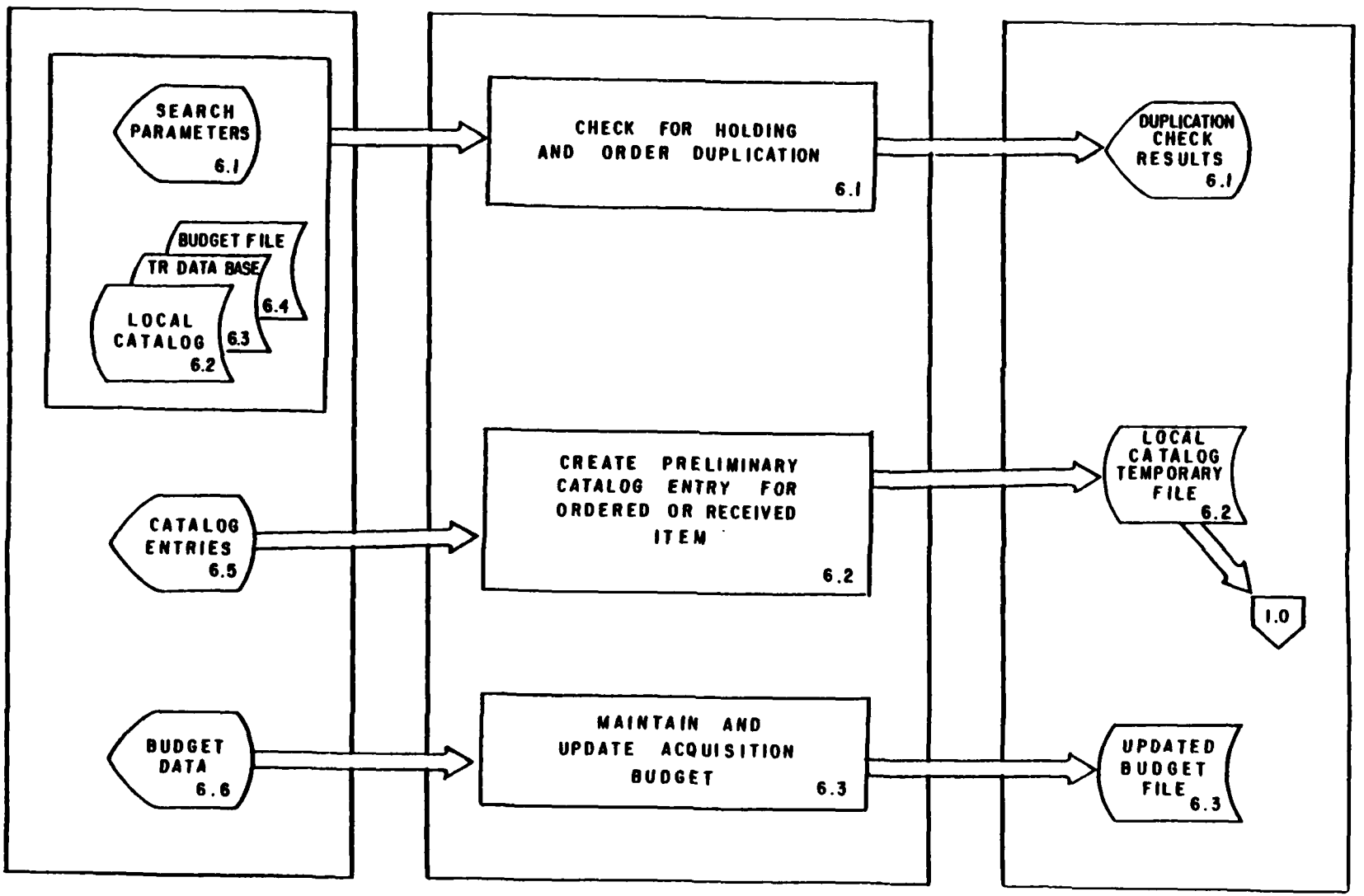
4.4.6 Acquisition Management Module (6.0).

The processing steps depicted in Figure 4-7 are described in this subsection.

4.4.6.1 Check for Holding and Order Duplication (6.1).

Input. Process inputs consist of the local catalog, local budget file, and user-specified search parameters entered from the terminal keyboard.

FIGURE 4-7. ACQUISITION MANAGEMENT MODULE HIPO CHART



Processing Steps. When the library receives a patron request for a new item and verifies the need for the item, a duplicate search of the local catalog and acquisition files is performed, to determine whether the item is already in the collection or on order. The local files can be searched by author, subject, title, local accession number, or publication date. The search is performed on-line with the routines resident in the System Management Module.

Output. A message is printed at the user's terminal to indicate whether a citation matching the search parameters was found. Citations may be viewed by the user on the terminal screen.

4.4.6.2 Create Preliminary Catalog Entry (6.2).

Input. Descriptive cataloging data from the terminal keyboard is entered by the user.

Processing Steps. If a desired item is not found in the local files (sub-section 4.4.6.1), a preliminary bibliographic record is created when the item is ordered. This record is an abbreviated version of the complete citation, consisting of descriptive cataloging data, primarily key fields such as title, author (corporate or individual), and date of publication. The data are entered from the user's terminal keyboard, edited, and used as the basis for developing a complete bibliographic citation when the item arrives. These data can also be used to initiate claims for unreceived items and to check for order duplication.

Output. This process results in storage of a preliminary bibliographic citation in the local system.

4.4.6.3 Maintain and Update Acquisition Budget (6.3).

Input. Budget data relating to the ordering and purchase of new items are entered from the terminal keyboard.

Processing Steps. This process involves recording and tracking fiscal data of on-order items, tabulating current funds available, and storing acquisition data on vendors and suppliers. These data are used for accounting and budget management within the library.

Output. This process results in an updated local budget file.

APPENDIX A

LAM DATA ELEMENTS BY INPUT

The data elements that make up each LAM input are provided in this appendix. The inputs are listed by HIPO reference number as they appear in Figures 4-2 through 4-7. An "X" under the reference number indicates that the data element is included as part of the input. A description of each input is provided in Table 4-1; a description of each data element is provided in Appendix B.

APPENDIX A. LAM DATA ELEMENTS BY INPUT

ELEM. NO.	ELEMENT NAME	INPUT NUMBER* 2.1	2.2	2.3	2.4	2.5	02.2	02.3	2.6	3.1	3.2	3.3	3.4	03.2	03.5	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	6.1	6.2	6.3	6.4	6.5	6.6
1	DTL Number	X		X												X			X									X	X	
2	Call Number	X		X												X			X		X							X	X	
3	Type of Holding			X															X		X							X	X	
4	Status Code			X	S	S	S	S	S	S	S	S	S	S	S		S		X				S		S	S	S		X	
5	Date Coded			X	A	A	A	A	A	A	A	A	A	A	A		A				X		A		A	A	A	X		
6	Primary Report Number	X	X	X	M	M	M	M	M	M	M	M	M	M	M	X	M		X				M		M	M	M	X	X	
7	Secondary Report Number	X		X	E	E	E	E	E	E	E	E	E	E	E	X	E						E		E	E	E	X		
8	DTIC Accession Number	X	X	X												X			X									X		
9	MIPR Number	X		X	A	A	A	A	A	A	A	A	A	A	A		A						A		A	A	A			
10	Origination Date	X	X	X	S	S	S	S	S	S	S	S	S	S	S	X	S		X		X		S	X	S	S	S	X		X
11	Originating Agency	X	X	X												X			X									X		X
12	Security Control Number			X	2.3	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.3	2.3	2.3		2.3						2.3		2.1	2.3	2.2			
13	CNDI		X	X																										
14	Handling		X	X																										
15	Restricted Data		X	X																										
16	Document Classification		X	X																								X		
17	Downgrade Code			X																										
18	Page/Leaf Count		X	X																	X									
19	Contract Number		X	X																										
20	Weeds:Category			X																X										
21	Weeds:Retention Cycle			X																X										
22	Weeds:Office Symbol			X																X										
23	Scope Notes		X	X																	X									
24	Subtask Number			X																										
25	Copy/Series Number			X																	X	X						X		X
26	Copy/Series Deletion Date			X																										
27	Microfiche Copy Number			X																								X		
28	Microfiche Copy Deletion Date			X																										
29	Author	X	X	X												X			X									X	X	X
30	Title	X	X	X												X			X		X	X		X				X	X	X
31	Title Classification		X	X															X					X					X	X
32	Deletion Message			X																										
33	Record Classification	X	X	X																	X	X						X	X	
34	Name			X												X		X	X											
35	Need to Know			X														X	X											
36	Agency/Address			X															X											
37	Circulation Date			X															X											
38	Due Date			X												X			X											
39	Return Date			X															X											
40	Operation Name			X																										
41	ISDM			X																										
42	Processing Date			X																										
43	Processing Status			X																										
44	DNA Accession Number			X																	X									

APPENDIX A. LAM DATA ELEMENTS BY INPUT (Continued)

45	Place of Publication			X																	X									
46	Volume Number			X																	X	X		X				X	X	
47	Issue Number			X																	X	X		X				X	X	
48	Primary Requesting Office	X		X																	X							X		
49	Recipients			X																	X			X						
50	Frequency			X																	X	X								
51	Subject Headings	X	X	X												X														
52	Security Classification of Subject Headings		X	X																										
53	Posting Terms/Descriptors	X	X	X												X														
54	Security Classification of Posting Terms			X																										
55	Price of Item			X																								X		X
56	Postage & Handling Cost			X																								X		X
57	Total Cost			X																								X		X
58	Total Cumulative Expenditure			X																								X		X
59	Publisher's Address			X																								X		
60	Publisher Point of Contact			X																								X		
61	Point of Contact Phone No.			X																								X		
62	Date Ordered			X																								X	X	
63	Reclassification Date			X																X										
64	Subject Fields and Groups		X																											
65	Descriptive Note		X																											
66	RDT&E Project Number		X																											
67	SBIN Distribution/ Availability		X																											
68	RTE&E Task Number		X																											
69	RDT&E Work Unit Number		X																											
70	Monitoring Agency Acronym		X																											
71	Monitoring Agency Series Number		X																											
72	Abstract		X																											
73	Abstract Classification		X																											
74	Regrade Date		X																											
75	Annotation/Index Annotation		X																											
76	Serial Code/Source Series		X																											
77	Corporate Author Code		X																											
78	Classification Authority		X																											
79	Declassification Date/Event		X																											
80	Downgrade Date/Event		X																											
81	Extension Authority		X																											
82	Review Date		X																											
83	Reason for Extension		X																											
84	SBIN Holding Symbol		X																											

* Input numbers are taken from diagrams in section 4.4, "Program Descriptions."

APPENDIX B

DATA ELEMENTS FOR THE DNA LOCAL AUTOMATION MODEL

The data elements identified for inclusion in the LAM data base at DNA are listed and described in this appendix. The data category, element formats, DTIC field number, required elements, number of occurrences, edit criteria, and comments are given for each element. As noted earlier, some elements will be stored in both the local and the TR data bases, and other elements will be stored in only one of the two bases. Entries in the columns headed "DNA Format" and "DTIC Format" indicate the data base(s) in which each element will be stored.

APPENDIX B. DATA ELEMENTS FOR THE DNA LOCAL AUTOMATION MODEL

ELEM. NO.	ELEMENT NAME	DATA CATEGORY	DNA FORMAT TYPE	DNA FORMAT LEN.	DTIC FORMAT TYPE	DTIC FORMAT LEN.	DTIC FLD. NO.	REQUIRED FIELDS DNA	REQUIRED FIELDS DTIC	NUMBER OF OCCURRENCES	EDIT CRITERIA	DESCRIPTION/COMMENTS
1	DTL Number	C,P,A	A/N	25			N/A	Yes		1/Holding	None	DNA Technical Library (DTL) Number
2	Call Number	C,P,A	A/N	20			N/A			1/Holding	None	Used for books and serials only.
3	Type of Holding	C,P,A	A	1			N/A	Yes		1/Holding	None	Indicates report, book, serial,other.
4	Status Code	C,P,A	A/N	1			N/A	Yes		1/Holding	None	Indicates status of holding: shelved, on loan, missing, etc.
5	Date Coded	A	N	6			N/A			1/Holding	None	Date holding was input into system.
6	Primary Report Number	C,P,A	A/N	25	A/N	35	#14	Yes		1/Holding	None	Originating Report Number Source Series/Report Number (DTIC element name)
7	Secondary Report Number	C,P	A/N	25			N/A			1/Holding	None	
8	DTIC Accession Number	C	A/N	12	A/NN	9	#1		Yes	1/Holding	First two characters must be "AD"; third character must be alphabetic; next six must be numeric.	Includes 2 subfields: 7-character AD number and 5-character AD number.
9	MIPR Number	C	A/N	6			N/A			1/Holding	Must be all blank or all numeric; positions 3 or 4 may be a hyphen.	Military Interdepartmental Purchase Request (MIPR)
10	Origination Date	C,P	N	6	A/N	7	#11		Yes	1/Holding	None	Date of document/date of publication/ Report Date (DTIC element name)
11	Originating Agency	C,P	A/N	50	N	6	#35	Yes		1-3/Holding	An entry in this field is required when "Author" is blank.	Corporate Author (for reports) or Publisher (for books)
12	Security Control Number	C	N	7			N/A			1/Holding	None	
13	CNWDI	C	A	2	A A	1 1	#22 #31			1/Holding	None	Critical Nuclear Weapons Design Information
14	Handling	C	A/N	1	A/N A/N	1 1	#22 #33			1/Holding	None	Publicly releasable or limited distribution
15	Restricted Data	C	A	1	A/N A	1 1	#22 #33			1/Holding	None	Includes Formerly Restricted Data

16	Document Classification	C,P	A	6	A	1	#20	Yes	Yes	1/Holding	Must have value of S,C, or U.	Report Classification (DTIC element name)
17	Downgrade Code	C	N	1			N/A			1/Holding	None	
18	Page/Leaf Count	C	N	4	A/N	4	#12			1/Holding	None	Pagination (DTIC element name)
19	Contract Number	C	A/N	29	A/N	35	#15			1-2/Holding	None	Contract or Grant Number (DTIC element name)
20	Weeds:Category	C	N	1			N/A			1/Holding	Must be blank or have a value of 1,2,3,or 4	Indicates DNA Report, DNA Funded Report or other report
21	Weeds:Retention Cycle	C	N	2			N/A			1/Holding	None	Indicates time period to retain document
22	Weeds:Office Symbol	C	A	5			N/A			1/Holding	None	Office symbol of responsible office
23	Scope Notes	C	A/N	12	A/N A/N	120 600	#9 #21			1/Holding	None	Includes series name & number for books(DNA)/ Descriptive Note (DTIC Element #9) Supplementary Note (DTIC Element #21)
24	Subtask Number	C	A/N	11			N/A			1/Holding	None	
25	Copy/Series Number	C,P	A/N	6						1-4/Holding	This field or field #27 must not be blank	Copy number
26	Copy/Series Deletion Date	C	N	6			N/A			1-4/Holding	None	
27	Microfiche Copy Number	C,P	A/N	6			N/A			1-4/Holding	This field or field #27 must not be blank	
28	Microfiche Copy Deletion Date	C	A/N	6			N/A			1-4/Holding	None	
29	Author	C,P,A	A/N	20	A/N	60	#10	Yes		1-3/Holding	An entry is required if "Originating Agency" is blank	Personal Author (DTIC element name)
30	Title	C,P,A	A/N	60	A/N A/N	450 450	#6 #7	Yes		1-4/Holding	None	DTIC Field #6 is Unclassified Title DTIC Field #7 is Classified Title
31	Title Classification	C,P,A	A	1	A	1	#8	Yes		1/Holding	Must be U,R,C, or S (DTIC) If DTIC Field #7 has an entry, "U" is not permitted	
32	Deletion Message	C	A/N	60			N/A			1/Holding	None	
33	Record Classification	C,P,A	A	1	A	1	#3	Yes	Yes	1/Record	Must have a value of U,FOUO,C, CFRD,CRD,S,SFRD,SFRDCN,SRD,SRDNC	Entry Classification or Card Catalog Classification (DTIC element name)
34	Name	P	A/N	25			N/A			1/Record	None	Name of Patron
35	Need to Know	P	A/N	50			N/A			1-20/Record	None	Subjects for which a patron has access to library holdings

APPENDIX B. DATA ELEMENTS FOR THE DNA LOCAL AUTOMATION MODEL (Continued)

36	Agency/Address	P	A/N	100			N/A			1/Record	None	Patron's Agency and Address
37	Circulation Date	P	N	6			N/A			1/Holding	None	Date on which holding was checked out
38	Due Date	P	N	6			N/A			1/Holding	None	Date on which holding is due to be returned
39	Return Date	P	N	6			N/A			1/Holding	None	Date on which holding was returned to library
40	Operation Name	C	A/N	15			N/A			1-15/Holding	None	Name of operation in which test was performed (NTPR records only)
41	ISCM	C	A/N	4			N/A			1/Holding	None	Intelligence/Security Classification Management Management (NTPR records only)
42	Processing Date	C	N	6						1/Holding	None	Date available at NTIS
43	Processing Status	C	A/N	1			N/A			1/Holding	None	In-process, Determined to be releasable, or releasable
44	DNA Accession Number	C,P	N	7			N/A			1/Holding	Must be numeric; third digit must be a dash.	Serials only?
45	Place of Publication	C,A	A/N				N/A			1/Holding	None	Books and Serials Only
46	Volume Number	C,P,A	A/N	5			N/A			1/Holding	None	
47	Issue Number	C,P,A	A/N	7			N/A			1/Holding	None	
48	Primary Requesting Office	C,A	A/N	50			N/A			1/Holding	None	Subscriber (serials)/Requestor (acquisitions)
49	Recipents	C	A/N	25			N/A			1-20/Holding	None	Recipients of serials (SDI/routing)
50	Frequency	C	A/N	5			N/A			1/Holding	None	Serials Only
51	Subject Headings	C	A/N	50	A/N	50	#25			1-20/Holding	Matched against local authority file.	Posting Terms(Identifiers)/Open-ended Terms/ SHIN Terms (DTIC element name)
52	Security Classification of Subject Headings	C	A	1	A/N	1	#24	Yes		1-20/Holding	Must have a value of S,C,R, or U.	
53	Posting Terms/Descriptors	C	A/N	50	A/N	50	#23		Yes	1-20/Holding	Must be an approved DRIT term.	
54	Security Classification of Posting Terms	C	A	1	A	1	#24	Yes+	Yes	1-20/Holding	Must have a value of S,C,R, or U. +An entry is required when there is an entry in "Posting Terms/ Descriptors".	
55	Price of Item	A	N	7			N/A	Yes		1/Holding	Must be in currency format.	
56	Postage & Handling Cost	A	N	7			N/A			1/Holding	Must be in currency format.	
57	Total Cost	A	N	8			N/A	Yes		1/Holding	Must be in currency format and	

										must equal value of fields 51+52.	
58	Total Cumulative Expenditure	A	N	10		N/A	Yes		1/Holding	Must equal previous value minus value of field 53.	
59	Publisher's Address	A	A/N	80		N/A			1/Holding	None	
60	Publisher Point of Contact	A	A	40		N/A			1/Holding	None	
61	Point of Contact Phone No.	A	A/N	20		N/A			1/Holding	None	
62	Date Ordered	A	N	6		N/A	Yes		1/Holding	None	
63	Reclassification Date	C	N	6		N/A	Yes#		1/Holding	# For holdings with "Report Classification" of S,C, or R.	
64	Subject Fields and Groups	C			A/N	6	#2	Yes		1-8/Holding	None	Identify the general area of science or technology covered by the report.
65	Descriptive Note	C			A/N	120	#9			1/Holding	None	Word or phrase which denotes type of report, e.g. "Final","Annual","Interim".
66	RDT&E Project Number	C			A/N	36	#16			1-2/Holding	None	"Required if there is an entry in "RDT&E Project Number".
67	SHIN Distribution/ Availability	C			A/N	1	#33	Yes		1-3/Holding	None	
68	RDT&E Task Number	C			A/N	36	#17			1-2/Holding	None	
69	RDT&E Work Unit Number	C			A/N	20	#25			1/Holding	None	
70	Monitoring Agency Acronym	C			A/N	30	#18		Yes#	1-2/Holding	#An entry in the following field requires an entry in this field.	Denotes the acronym prefix assigned a report by the government office monitoring or sponsoring the research.
71	Monitoring Agency Series Number	C			A/N	42	#19		Yes+	1-2/Holding	+An entry in the preceding field requires an entry in this field.	
72	Abstract	C			A/N	1760	#27			1/Holding	None	
73	Abstract Classification	C			A	1	#28			1/Holding	An entry is required when there is an entry in "Abstract Classification". A value of "U" is required when Report Classification is "U". This classification entry may not be higher than "Report Classification".	

APPENDIX B. DATA ELEMENTS FOR THE DNA LOCAL AUTOMATION MODEL (Continued)

74	Regrade Date	C	A	1	#32	Yes^	1/Holding	^Entry is required when "Report Classification","Subject Heading Classification", or "Posting Term Classif." is S,C, or R.	
75	Annotation/Index Annotation	C	A/N	450	#30		1/Holding	None	
76	Serial Code/Source Series	C	A/N	19	#34		1/Holding	None	
77	Corporate Author Code	C	N	6	#35	Yes	1/Holding	None	
78	Classification Authority	C	A/N	100	#37		1/Holding	None	
79	Declassification Date/Event	C	A/N	100	#38	Yes#	1/Holding	#See DTIC Handbook 4185.8, "Data Element Dictionary", pp. II-86 & II-87, for conditions in which this field is required.	
80	Downgrade Date/Event	C	A/N	100	#39	Yes+	1/Holding	+See DTIC Handbook, p. II-88	The date or event after which a secret report becomes confidential
81	Extension Authority	C	A/N	100	#45	Yes^	1/Holding	^See DTIC Handbook, p. II-96	The classification authority who authorized classification for more than 6 years
82	Review Date	C	A/N	7	#46	Yes%	1/Holding	%See DTIC Handbook, p. II-97	
83	Reason for Extension	C	N	1	#47	Yes@	1-8/Holding	@See DTIC Handbook, p. II-98	Identifies the reason justifying beyond 6 years
84	SHIN Holding Symbol	C	A/N	15	#48	No	1/Holding		

* Key to Data Categories
  C = Catalog/Bibliographic Data
  P = Patron/Circulation Data
  A = Acquisition/Budget Data

** Key to Format Types
  N = Numeric Characters Only (0-9)
  A = Alphabetic Characters Only (A-Z)
  A/N = Alphabetic, Numeric, and Special Characters
  A/N= Alphabetic and Numeric Characters but No Special Characters

APPENDIX C

LAM OUTPUT FORMATS AND DESCRIPTIONS

This appendix contains descriptions of the outputs produced by the LAM. Outputs from the system consist of terminal screen displays, hard-copy reports, and files stored on magnetic disk as part of the system data base. Files produced as outputs are not literally "seen" by the user in the same way that a screen display or hard-copy report would be. As such, readers are referred to Appendix A, "LAM Inputs" for the format and content of these outputs. However, examples and descriptions of terminal displays and hard-copy reports are presented in this appendix. The following outputs are described in this appendix:

The following outputs appear in the form of magnetic disk files not normally viewed by the user during system operations. The format and content of these outputs are described in Appendix A, "LAM System Inputs." The numbers appearing under the column title "Input Number" refer to the HIPO reference numbers and are used to locate the specific input format referred to in Appendix A.

Output Title	Output Number(s)	Input Number
TR Data Base Citation Temporary File	2.2, 2.4, 3.2	2.2
Local Catalog Citation Temporary File	2.3, 3.5, 4.4 5.1, 6.2	2.3
Updated Patron File	4.5	4.3
Updated Budget File	6.3	6.4

Output Title: TR Data Base Citation

Purpose of Output: Used to catalog a local holding using a TR data base citation

Sequencing of Information: This report will be sequenced by AD Number (DTIC Accession Number)

Heading: Includes title of output

Body of Output:

a. AD number: A machine processing control number assigned uniquely to a technical report by DTIC

b. Fields and groups: DTIC-defined categories which identify the area of science or technology covered in the report

c. Corporate author: The organization credited with the preparation, writing or compiling of the content of the report

d. Title: The name of the document

e. Title classification: The security classification of the title

f. Descriptive note: Denotes the type of report (e.g. Final, Interim)

g. Report date: The date of publication of the report

h. Pagination: Number of pages in the document

i. Report number: The number assigned to a document by the organization, whether government, military or contractor, which performed the research reportedin the report

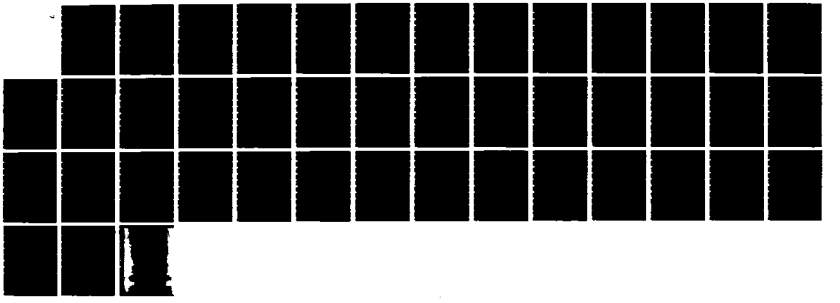
j. Contract number: The contract, grant, or order funding that identifies the financial support of the research results recorded in the technical report

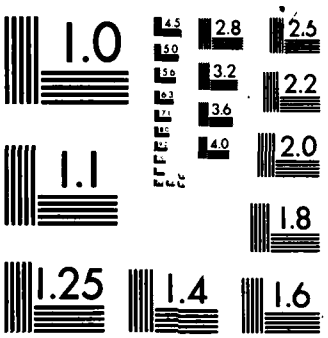
k. Report classification: The security classification of the report

l. Descriptors: A word or phrase from the DRIT which expresses the technical effort being reported

m. Descriptor classification: The security classification of the descriptors

AD-A141 503 LOCAL AUTOMATION MODEL: SYSTEM SPECIFICATION(U) 2/2
LOGISTICS MANAGEMENT INST WASHINGTON DC
W P HAMILTON ET AL. MAR 84 LMI-DL401 MDA903-81-C-0166
UNCLASSIFIED F/G 5/2 NL





n. Identifiers: A word or phrase which refers to specific scientific or technical concepts covered in the report

o. Identifier classification: The security classification of the identifiers

Sample Report: See Figure C-1

Output Title: TR Data Base Citation

Purpose of Output: Used to catalog a local holding using a TR data base citation

Sequencing of Information: This report will be sequenced by AD Number (DTIC Accession Number)

Heading: Includes title of output

Body of Output:

a. AD number: A machine processing control number assigned uniquely to a technical report by DTIC

b. Fields and groups: DTIC-defined categories which identify the area of science or technology covered in the report

c. Corporate author: The organization credited with the preparation, writing or compiling of the content of the report

d. Title: The name of the document

e. Title classification: The security classification of the title

f. Descriptive note: Denotes the type of report (e.g. Final, Interim)

g. Report date: The date of publication of the report

h. Pagination: Number of pages in the document

i. Report number: The number assigned to a document by the organization, whether government, military or contractor, which performed the research reportedin the report

j. Contract number: The contract, grant, or order funding that identifies the financial support of the research results recorded in the technical report

k. Report classification: The security classification of the report

l. Descriptors: A word or phrase from the DRIT which expresses the technical effort being reported

m. Descriptor classification: The security classification of the descriptors

FIGURE C-1. TR DATA BASE CITATION (FOR CATALOGING)

TR DATA BASE CITATION (FOR CATALOGING)

AD Number _____

Fields and Groups ____ , ____ , ____ , ____

Corporate Author _____

Title _____

Title Classification _____

Descriptive Note _____

Personal Author _____

Report Date _____

Pagination _____

Report Number _____

Contract Number _____

Report Classification _____

Descriptors _____

_____

Descriptor Classification _____

Identifiers _____

Identifier Classification _____

Output Title: TR Data Base Citation

Purpose of Output: Used to identify a report in the TR data base

Sequencing of Information: This report will be sequenced by AD Number (DTIC Accession Number)

Heading: Includes title of output

Body of Output:

a. AD number: A machine processing control number assigned uniquely to a technical report by DTIC

b. Fields and groups: DTIC-defined categories which identify the area of science or technology covered in the report

c. Corporate author: The organization credited with the preparation, writing or compiling of the content of the report

d. Title: The name of the document

e. Title classification: The security classification of the title

f. Descriptive note: Denotes the type of report (e.g. Final, Interim)

g. Report date: The date of publication of the report

h. Pagination: Number of pages in the document

i. Report number: The number assigned to a document by the organization, whether government, military or contractor, which performed the research reported in the report

j. Contract number: The contract, grant, or order funding that identifies the financial support of the research results recorded in the technical report

k. Report classification: The security classification of the report

l. Descriptors: A word or phrase from the DRIT which expresses the technical effort being reported

m. Descriptor classification: The security classification of the descriptors

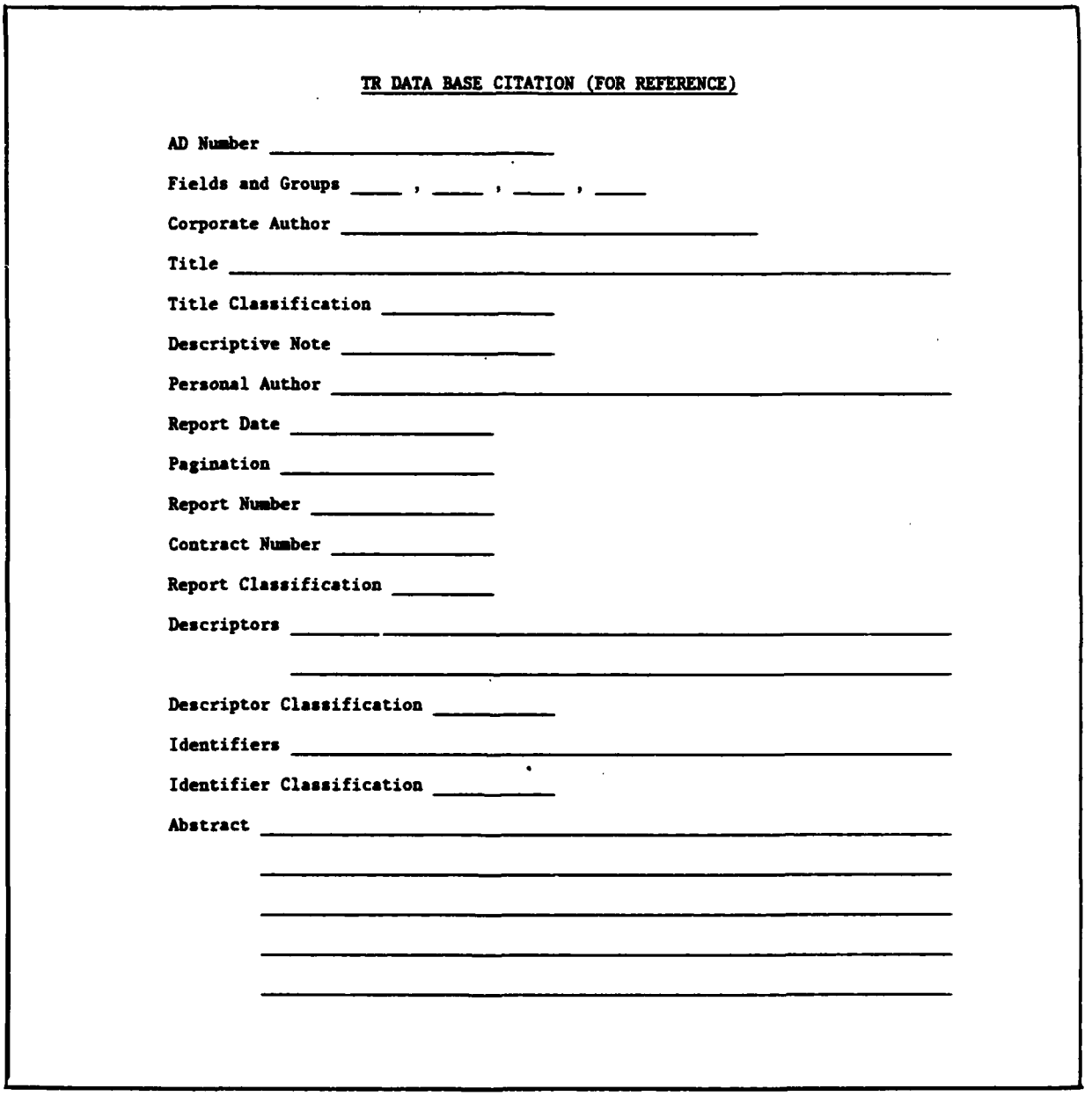
n. Identifiers: A word or phrase which refers to specific scientific or technical concepts covered in the report

o. Identifier classification: The security classification of the identifiers

p. Abstract: Summary of the most significant information contained in the report

Sample Report: See Figure C-2

FIGURE C-2. TR DATA BASE CITATION (FOR REFERENCE)



TR DATA BASE CITATION (FOR REFERENCE)

AD Number _____

Fields and Groups ____ , ____ , ____ , ____

Corporate Author _____

Title _____

Title Classification _____

Descriptive Note _____

Personal Author _____

Report Date _____

Pagination _____

Report Number _____

Contract Number _____

Report Classification _____

Descriptors _____

_____

Descriptor Classification _____

Identifiers _____

Identifier Classification _____

Abstract _____

_____

_____

_____

_____

Output Title: Local Catalog Citation

Purpose of Output: To identify a local holding and to revise a local citation for submission to the TR data base

Sequencing of Information: This output will be sequenced by DTL number for reports and by call number for books and serials

Heading: Includes title of the output

Body of the Report:

a. DTL number: DNA Technical Library accession number, assigned sequentially to reports

b. Call number: Catalog number assigned to books and serials

c. Type of holding: Indicates the class of holding (report, book, serial)

d. Primary report number: The number assigned to a document by the organization, whether government, military or contractor, which performed the research recorded in the document

e. DTIC accession number: A machine processing control number assigned uniquely to a technical report by DTIC

f. Origination date: Date of the document

g. Originating agency: The organization credited with the preparation, writing or composing of the content of the document

h. Document classification: Security classification of the output

i. Page/leaf count: Number of pages in the document

j. Contract number: The contract, grant, or order funding that identifies the financial support of the research results recorded in the document

k. Author: The person or persons credited with the preparation, writing or composing of the content of the report

l. Title: The name of the document

m. Title classification: Security classification of the title

n. Subject headings: Any single words or phrases expressing the technical effort being reported

o. Security classification of subject headings: Self-explanatory

Sample Report: See Figure C-3

FIGURE C-3. LOCAL CATALOG CITATION

LOCAL CATALOG CITATION

DTL Number _____

Call Number _____

Type of Holding _____

Primary Report Number _____

Organization Date _____

Originating Agency _____

Document Classification _____

Page/Leaf Count _____

Contract Number _____

Author _____

Title _____

Title Classification _____

Date Ordered _____

Report Title: Holding Status and Location

Purpose of Report: To determine the status and location of a holding

Sequencing of Information: This report will be sequenced by DTL Number

Heading: Includes the title of the report

Body of Report:

a. Holding status: Indicates the circulation status of the holding (shelved, on loan, missing, etc.)

b. DTL number: DNA Technical Library catalog number, assigned sequentially to reports

c. Call number: Catalog number assigned to books and serials

d. Title: Name of the holding

e. Title classification: Security classification of the title

f. Document classification: Security classification of the document

g. Originating agency: The organization credited with the preparation, writing or composing of the report. For reports, the corporate author is the originating agency; for books, the originating agency is the publisher

h. Origination date: Date of publication

i. Primary report number: The number assigned to a document by the organization, whether government, military or contractor, which performed the research recorded in the report

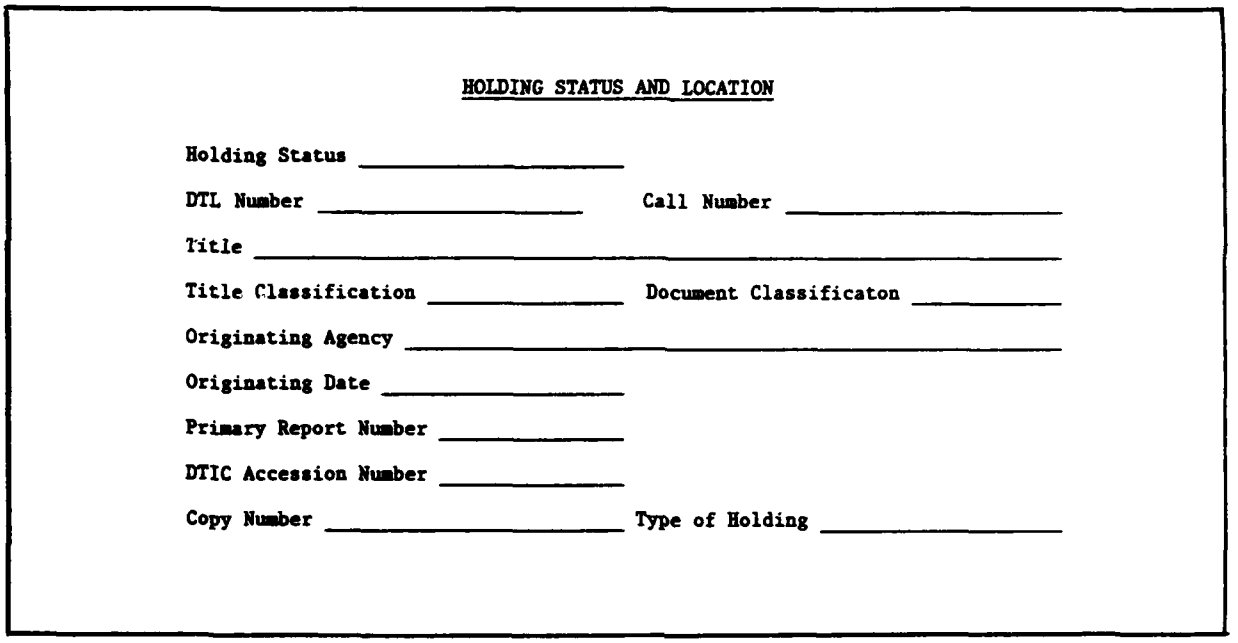
j. DTIC accession number: A machine processing control number assigned uniquely to a technical report by DTIC

k. Copy number: Sequential numbering of documents for which a library has multipe copies

l. Type of holding: Indicates the class of a holding (report, book, serial, etc.)

Sample Report: See Figure C-4

FIGURE C-4. HOLDING STATUS AND LOCATION



HOLDING STATUS AND LOCATION

Holding Status _____

DTL Number _____ Call Number _____

Title _____

Title Classification _____ Document Classificaton _____

Originating Agency _____

Originating Date _____

Primary Report Number _____

DTIC Accession Number _____

Copy Number _____ Type of Holding _____

Report Title: Patron Access Verification
Purpose of Report: To determine whether a patron has the required "need to know" clearance to check out a selected holding
Sequencing of Information: This report will be sequenced alphabetically by a patron's last name
Heading: Includes the title of the report
Body of Output: a. Name: Name of the patron b. Agency/address: The agency with which a patron is affiliated and, if the affiliation is other than DNA Headquarters, the patron's mailing address c. Need to know: The subject areas within which a patron is authorized to check out library materials
Sample Report: See Figure C-5

FIGURE C-5. PATRON ACCESS VERIFICATION

PATRON ACCESS VERIFICATION

Name _____

Agency/Address _____

_____

_____

Need to Know (Subject Headings)

1. _____
2. _____
3. _____
4. _____

(Up to 15 entries can be displayed)

Report Title: Charge-out Receipt and Accountability Record

Purpose of Report: To record the transfer of responsibility for a classified document from the library to the patron who has checked out the document

Heading: Includes the title of the report, the name of the patron and the address of the DNA library

Body of Report:

a. Control number: Unique identification number assigned to a classified document by the security control point within an organization; also referred to as security control number

b. Classification: Security classification of the document

c. Copy number: Sequential numbering of documents for which a library has multiple copies

d. Title: The name of the document

e. Originating agency: The organization credited with the preparation, writing or composing of the content of the report. For reports, the corporate author is the originating agency

f. Document date: The date of publication of the document

g. Due date: Date on which the holding is due to be returned to the library by the patron

h. Circulation date: Date on which the document was last checked out of the library

i. Today's date: Date on which the accountability record was produced

j. Name of patron: Name of the individual to whom the document is charged

k. Patron's title or grade: Name or grade of the patron's position

l. Patron's mailing address: Office address at which the patron receives mail

Sample Report: See Figure C-6

FIGURE C-6. CHARGE-OUT RECEIPT/ACCOUNTABILITY RECORD

CHARGE-OUT RECEIPT/ACCOUNTABILITY RECORD

FROM: DIRECTOR
DEFENSE NUCLEAR AGENCY
ATTN: TITL
WASHINGTON, D.C. 20305

CONTROL NO: _____ CLASSIFICATION: _____ COPY NO: _____

TITLE: _____

ORIGINATING AGENCY: _____

DOCUMENT DATE: _____ DUE DATE: _____

CIRCULATION DATE: _____ TODAY'S DATE: _____

PATRON'S NAME: _____

PATRON'S MAILING ADDRES: _____

_____

BY SIGNING, I ACKNOWLEDGE THAT I HAVE RECEIVED THE ABOVE MATERIAL AND THAT THE ABOVE INFORMATION IS ACCURATE.

PATRON'S SIGNATURE: _____

Report Title: Downgrade/Destruction Report

Purpose of Report: To identify documents scheduled for downgrading or destruction each month

Sequencing of Information: This report will be divided into two parts: downgrading and destruction. Within each part, information will be sequenced by security classification and, secondarily, by accession number

Heading: Includes security classification of the report, name of the LAM library, report title, date on which the report was generated, and page number

Body of the Report:

The report is divided into two parts: downgrading and destruction. Each part is organized as follows:

a. Statistical summary:

- Current classification: Security classification of the library headings
- Previous month: The number of holdings, scheduled for downgrading or destruction in previous months, which were not downgraded
- Current month: The number of holdings scheduled for downgrading or destruction in the current month
- Next Month: The number of holdings scheduled for downgrading or destruction in the following month

b. Detailed listings; includes the following information on all holdings currently due for downgrading or destruction:

- Accession number: For reports, DTL number; for books, call number
- Status: Indicates whether a holding is currently on-hand or unavailable (checked out, being rebound, etc)
- Title: The name of the document, including the subtitle and alternate where cited

- Copy number: Number assigned to multi-copy holdings to uniquely identify each copy

- Downgrade classification: Security classification to which a holding is scheduled to be re-classified (not applicable for destruction)

- Downgrade or destruction date: Date on which a holding is scheduled to be reclassified

Sample Report: See Figure C-7

FIGURE C-7. DOWNGRADE/DESTRUCTION REPORT

CLASSIFICATION

HEADQUARTERS DEFENSE NUCLEAR AGENCY

TECHNICAL LIBRARY

I. DOWNGRADE REPORT

AS OF: XXXXXX PAGE: 99

NUMBER OF HOLDINGS TO BE DOWNGRADED

CURRENT CLASSIFICATION	PREVIOUS MONTHS	CURRENT MONTH	NEXT MONTH
TOP SECRET	999	999	999
SECRET	999	999	999
CONFIDENTIAL	999	999	999
TOTAL	9999	9999	9999

TOP SECRET HOLDINGS TO BE DOWNGRADED THIS MONTH
(INCLUDING HOLDINGS NOT DOWNGRADED IN PREVIOUS MONTHS)*

ACCESSION NUMBER	STATUS	TITLE	COPY NO	DOWNGRADE CLASSIFICATION	DOWNGRADE DATE
99999	X	XXXXXXXXXXX	999	XXXXXX	XXXXXX
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

*NOTE: THIS REPORT WILL BE SORTED BY ALL SECURITY CLASSIFICATIONS WITHIN A LIBRARY'S COLLECTION (i.e., TOP SECRET, SECRET, CONFIDENTIAL, ETC.)

FIGURE C-7. DOWNGRADE/DESTRUCTION REPORT-(Continued)

CLASSIFICATION

HEADQUARTERS DEFENSE NUCLEAR AGENCY

TECHNICAL LIBRARY

II. DESTRUCTION REPORT

AS OF: XXXXXX PAGE: 99

NUMBER OF HOLDINGS TO BE DESTROYED

CURRENT CLASSIFICATION	PREVIOUS MONTHS	CURRENT MONTH	NEXT MONTH
TOP SECRET	999	999	999
SECRET	999	999	999
CONFIDENTIAL	999	999	999
UNCLASSIFIED	999	999	999
TOTAL	9999	9999	9999

TOP SECRET HOLDINGS TO BE DESTROYED THIS MONTH
(INCLUDING HOLDINGS NOT DOWNGRADED IN PREVIOUS MONTHS)*

ACCESSION NUMBER	STATUS	TITLE	COPY NO	DESTRUCTION DATE
99999	X	XXXXXXXXXX	999	XXXXXX
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

*NOTE: THIS REPORT WILL BE SORTED BY ALL SECURITY CLASSIFICATIONS WITHIN A LIBRARY'S COLLECTION (i.e., TOP SECRET, SECRET, CONFIDENTIAL, ETC.)

Report Title: Serial Claims Report
Purpose of Report: To identify recent issues of serials which are due from the publisher but not yet received by the library
Sequencing of Information: This report will be sequenced alphabetically by serial title
Heading: Includes title of the report and the month being reported on
Body of the Report: a. Serial title: The name of the serial b. Date of issue: Date of publication of the serial
Sample Report: See Figure C-8

FIGURE C-8. SERIAL CLAIMS REPORT

SERIAL CLAIMS REPORT

Missing Serials for the month of _____

Serial Title	Date of Issue

Report Title: Serial Routing List

Purpose of Report: To provide for the routing of serials to all requesting offices

Sequencing of Information: This report will be sequenced alphabetically by serial title. Each page will contain routing information about a single serial.

Heading: Includes the title of the report

Body of the Report:

a. Serial title: The name of the serial publication

b. Volume number & issue number: The numbering sequence by which the individual issue of a serial is identified

c. Issue date: Date on which the issue was published

d. Copy number: For multiply-copy subscriptions, the sequential number identifying an individual copy

e. Classification: Security classification of the serial

f. Recipients: Individuals or offices to which the serial is routed

Sample Report: See Figure C-9

FIGURE C-9. SERIAL ROUTING LIST

SERIAL ROUTING LIST

Serial Title _____

Volume Number _____ Issue Number _____

Issue Date _____

Copy Number _____ Classification _____

Recipients

1. _____
2. _____
3. _____
4. _____

(Up to 20 recipients can be listed)

Output Title: Duplicate Check Results

Purpose of Output: To determine whether a requested document is in the library's collection or on order

Sequencing of Information: This output will be sequenced by DTL number for reports and by call number for books and serials

Heading: Includes title of the output

Body of Output:

a. DTL number: DNA Technical Library accession number, assigned sequentially to reports

b. Call number: Catalog number assigned to books and serials

c. Primary report number: The number assigned to a document by the organization, whether government, military or contractor, which performed the research recorded in the document

d. Origination date: Date of the document

e. Originating agency: The organizaton credited with the preparation, writing or composing of the content of the document

f. Document classification: Security classification of the output

g. Page/Leaf Count: Number of pages in the document

h. Contract number: The contract, grant, or order funding that identifies the financial support of the research results recorded in the document

i. Author: The person or persons credited with the preparation, writing or composing of the content of the report

j. Title: The name of the document

k. Title classification: Security classification of the title

l. Date ordered: Date on which the document was ordered by DNA

Sample Report: See Figure C-10

FIGURE C-10. DUPLICATE CHECK RESULTS

DUPLICATE CHECK RESULTS

DTL Number _____

Call Number _____

Type of Holding _____

Primary Report Number _____

Origination Date _____

Originating Agency _____

Document Classification _____

Page/Leaf Count _____

Contract Number _____

Author _____

Title _____

Title Classification _____

Date Ordered _____

Report Title: Statistical Report

Purpose of Report: To tabulate library statistics for major library functions

Sequencing of Information: This report will be sequenced by library function

Heading: Includes security classification of the report, name of the LAM agency library and name of report

Body of the Report:

a. Within major library functions, statistics are generated for the current month, previous month and year to date (where applicable)

b. Statistics within each function (circulation, holdings, etc.) are tabulated by one or more characteristics, as follows:

- Circulation statistics reflect the number of holdings which have been checked out of the library, tabulated by: media of the holding, security classification of the holding, category of patron, and number of days elapsed since the document was checked out

- Holdings statistics reflect the number of documents in a library's collection, tabulated by media and security classification

- Acquisitions statistics refer to the number of documents which were recently procured by the library tabulated by media and security classification

- SBIN statistics refer to the number of records transmitted via the Shared Bibliographic Input Network to DTIC

- Certified destruction statistics refer to the number of classified documents which were destroyed, tabulated by security classification of the document

Sample Report: See Figure C-11

FIGURE C-11. STATISTICAL REPORT

CLASSIFICATION

HEADQUARTERS DEFENSE NUCLEAR AGENCY

TECHNICAL LIBRARY

STATISTICAL REPORT

CIRCULATION	CURRENT MONTH	PREVIOUS MONTH	YEAR TO DATE
BY MEDIA			
REPORTS	9999	9999	99999
PERIODICALS	9999	9999	99999
BOOKS	9999	9999	99999
MICROFICHE	9999	9999	99999
MEMORANDA	9999	9999	99999
OTHER	9999	9999	99999
TOTAL	99999	99999	999999
BY CLASSIFICATION			
TOP SECRET	9999	9999	99999
SECRET	9999	9999	99999
CONFIDENTIAL	9999	9999	99999
UNCLASSIFIED	9999	9999	99999
TOTAL	99999	99999	999999
BY PATRON			
DNA STAFF	9999	9999	99999
DNA CONTRACTOR	9999	9999	99999
DNA-ALBEQUERQUE	9999	9999	99999
DNA-SANTA BARBARA	9999	9999	99999
OTHER	9999	9999	99999
TOTAL	99999	99999	999999
BY CALENDAR DAYS			
0-14 DAYS	9999	9999	99999
15-30 DAYS	9999	9999	99999
31-60 DAYS	9999	9999	99999
61-120 DAYS	9999	9999	99999
OVER 120 DAYS	9999	9999	99999
TOTAL	99999	99999	999999
HOLDINGS			
BY MEDIA			
REPORTS	9999	9999	
PERIODICAL	9999	9999	
BOOKS	9999	9999	N/A
MICROFICHE	9999	9999	
MEMORANDA	9999	9999	
OTHER	9999	9999	
TOTAL	99999	99999	

CLASSIFICATION

FIGURE C-11. STATISTICAL REPORT (Continued)

CLASSIFICATION

HEADQUARTERS DEFENSE NUCLEAR AGENCY

TECHNICAL LIBRARY

STATISTICAL REPORT

HOLDINGS (CONTINUED)	CURRENT MONTH	PREVIOUS MONTH	YEAR TO DATE
BY CLASSIFICATION			
TOP SECRET	9999	9999	99999
SECRET	9999	9999	99999
CONFIDENTIAL	9999	9999	99999
UNCLASSIFIED	9999	9999	99999
TOTAL	99999	99999	999999
ACQUISITIONS			
BY MEDIA			
REPORTS	9999	9999	99999
PERIODICALS	9999	9999	99999
BOOKS	9999	9999	99999
MICROFICHE	9999	9999	99999
MEMORANDA	9999	9999	99999
OTHER	9999	9999	99999
TOTAL	99999	99999	999999
BY CLASSIFICATION			
TOP SECRET	9999	9999	99999
SECRET	9999	9999	99999
CONFIDENTIAL	9999	9999	99999
UNCLASSIFIED	9999	9999	99999
TOTAL	99999	99999	999999
SBIN			
RECORDS TRANSMITTED TO:			
DTIC	9999	9999	99999
BRANCH LIBRARY	9999	9999	99999
CERTIFIED DESTRUCTION			
BY CLASSIFICATION			
TOP SECRET	9999	9999	99999
SECRET	9999	9999	99999
CONFIDENTIAL	9999	9999	99999
UNCLASSIFIED	9999	9999	99999
TOTAL	99999	99999	999999

CLASSIFICATION

Report Title: Report/Document Number Index

Purpose of Report: To provide a hard copy or COM reference document to be used in place of the on-line reference module in the event of a system failure.

Sequencing of Information: This report will be sequenced by report/document number. Information about each report/document will be presented on a single page.

Heading: Includes security classification of the report, name of the LAM library, report title, date report was generated, and page number.

Body of Report:

a. Accession number: For reports, DTL number; for books, call number

b. Report number (or source series): The number assigned to a document by the organization, whether government, military or contractor, which performed the research recorded in the report

c. Title: The name of the document, including the subtitle and alternative title when cited

d. Author:

- Personal author: The person credited with the preparation, writing or compiling of the content of the report

- Corporate author: The organization credited with the preparation, writing or composing of the content of the report

e. Document identification number

- DTIC accession number: A machine processing control number assigned uniquely to a technical report by DTIC

- Report number: Same as "B. Report Number" above

- MIPR number: Military Interdepartmental Purchase Request number

- Contract number: The contract, grant, or order funding that identifies the financial support of the research results recorded in the technical report

- Sub-task number: A component of a task representing a discrete unit of work performed by a single organization

- Monitor acronym: The acronym prefix and agency series number assigned to a technical report by the military

- Monitor series: Organization or government office monitoring or sponsoring the research in the report.

f. Security identification

- Document classification: Security classification of the document

- Document control number: Unique identification number assigned to a classified document by the security control point within an organization

- Citation classification: Security classification of the bibliographic record.

g. Document characteristics

- Media: Output format of the report (hard copy, microfiche, microfilm, etc)

- Report date: The date of publication of the document

- Volume and issue: For periodical publications, the numbers which uniquely identify a particular issue

- Weeds: Information used for reviewing and discarding unnecessary library holdings

- Pagination: Number of pages in the document

- Number of copies: Number of copies of the document in the library's catalog

- Copy numbers: Sequential numbering of documents for which a library has multiple copies.

NOTE:

Report indexes sequenced by the following fields can also be generated in this format:

- Monitor acronym/monitor series
- Subtask
- MIPR number
- Contract number
- Report title
- Personal author
- Corporate author.

Sample Report: See Figure C-12

FIGURE C-12. REPORT NUMBER INDEX

CLASSIFICATION

AS OF DATE: XXXXXX

HEADQUARTERS DEFENSE NUCLEAR AGENCY
TECHNICAL LIBRARY
REPORT NUMBER INDEX

PAGE: XXXXXX

ACCESSION NUMBER: DTL-XXXXXXX

REPORT NUMBER XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

TITLE: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X 450 CHARACTERS X
X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

PERSONAL AUTHOR: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CORPORATE AUTHOR: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

(MAY REPEAT UP TO 5 TIMES)

DOCUMENT IDENTIFICATION NUMBERS:
DTIC ACCESSION #: XXXXXXXXX REPORT #: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

MIPR #: XXXXXX CONTRACT #: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX SUBTASK #: XXXXXXXXXX

MONITOR ACRONYM: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
MONITOR SERIES: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX (MAY REPEAT 2 TIMES)

SECURITY IDENTIFICATION:
DOCUMENT CLASSIFICATION: XXXXXXXXXXXXXXXXXXXXX DOCUMENT CONTROL #: XXXXXX CITATION CLASSIFICATION: XXXXXXXXXXXXXXXXXXXXX

DOCUMENT CHARACTERISTICS:
MEDIA: XXXXXXXXXX VOLUME: 9999 WEEDS: X-XX-XXXX
REPORT DATE: XXXXXX ISSUE: 9999 PAGINATION: 9999
NUMBER OF COPIES: 9999 COPY NUMBERS: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

CLASSIFICATION

Report Title: Subject Heading Index
Purpose of Report: To provide a hard-copy reference document in place of the on-line catalog in the event the system is not available.
Sequencing of Information: This report will be sequenced alphabetically by subject heading.
Heading: Includes security classification of the report, name of the LAM library, report title, date on which the report is generated
Body of the Report: a. Subject heading: Any single word on phrases expressing the technical effort being reported b. Library accession number: A list of documents which are cataloged under the given subject heading, identified and sorted by library accession number (for reports, DTL number; for books, call number)
Sample Report: See Figure C-13

FIGURE C-13. SUBJECT HEADING INDEX

CLASSIFICATION

HEADQUARTERS DEFENSE NUCLEAR AGENCY

TECHNICAL LIBRARY

SUBJECT HEADING INDEX

AS OF DATE: MMDDYY

SUBJECT HEADING: XXXXX XXX

DNA ACCESSION NO: DTL - 99,9999

DTL - 99,9999

DTL - 99,9999

DTL - 99,9999

SUBJECT HEADING: XXXXX XXXXX

DNA ACCESSION NO: DTL - 99,9999

DTL - 99,9999

DTL - 99,9999

DTL - 99,9999

Report Title: Certified Destruction Report

Purpose of Report: Certifies that a classified document has been destroyed

Sequencing of Information: This report will be sequenced by DTL Number

Heading: Includes title of output

Body of Output:

a. DTL number: Identifier assigned to a document using the numbering schema of the DNA Technical Library

b. Page/Leaf count: Number of pages in the document

c. Copy number/Microform number: Indicates the copy number of a document or microform being destroyed

d. Date Coded: Date on which the document was originally entered into the system

e. DTIC AD number: A machine processing control number assigned uniquely to a technical report by DTIC

f. MIPR number: Military Interdepartmental Purchase Request number

g. Date of document: Date of publication of the report

h. Subtask number: DNA subtask which funded the research reported in the document

i. Scope notes: A phrase which indicates the class of the document (for example, "Final", "Draft", etc.)

j. Classification: The security classification assigned to the document

k. Originating agency (Corporate Author): The organization credited with the preparation, writing or composing of the content of the report

l. Author (Personal Author): The person credited with the preparation, writing or composing of the content of the report

m. Contract number: The contract, grant, or order funding that identifies the financial support of the research results recorded in the technical report

n. Primary report number: Number assigned to the document by the military or government office which sponsored the research

o. Secondary Report number: Number assigned to the document by the organization performing the research

p. Deletion Message: Information concerning destruction of the document and deletion of the document record from the data base

q. Document Title: Name of the document

r. Signature Blocks: Signature of the person who prepared the document for destruction and of the person who witnessed the destruction, as required by DoD security regulations.

Sample Report: See Figure C-14

FIGURE C-14. CERTIFIED DESTRUCTION REPORT

CERTIFIED DESTRUCTION REPORT

DTL NUMBER: _____ PAGE/LEAF COUNT: _____

COPY NUMBER 1: _____ 2: _____ 3: _____ 4: _____

MICROFORM NO. 1: _____ 2: _____ 3: _____ 4: _____

DATE CODED: _____ DTIC AD NUMBER: _____ MIPR NUMBER: _____

DATE OF DOCUMENT: _____ SUBTASK NUMBER: _____

SCOPE NOTES: _____

CLASSIFICATION: _____ SECURITY CONTROL NO.: _____ WEEDS: _____

ORIGINATING AGENCY: _____

AUTHOR: _____

CONTRACT NUMBER: _____ PRIMARY REPORT NO.: _____

DELETION MESSAGE: _____ SECONDARY REPORT NO: _____

DOCUMENT TITLE: _____

I have prepared the above listed documents for destruction, _____ pages.

Signature _____ Date _____

I have witnessed destruction of the above listed document.

Signature _____ Date _____

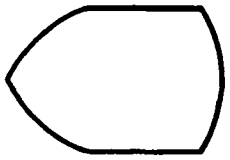
APPENDIX D

DESCRIPTION OF HIPO CHARTS AND SYMBOLS

The Hierarchy-Input-Process-Output (HIPO) design methodology uses a series of charts to depict the flow of processes and data within a system. Figures 4-2 through 4-7 contained in Section 4 of this System Specification are the input-process-output charts for the Local Automation Model (LAM). This appendix describes briefly the format and symbols used on the charts. For a more detailed explanation of the HIPO methodology, see "System Design and Documentation -- An Introduction to the HIPO Method," Harry Katzan, Jr., Van Nostrand Reinhold Company, New York, 1976 (ISBN 0-442-24267-0).

HIPO Chart Symbols.

The following symbols are used in preparing the LAM HIPO charts contained in this System Specification:



Indicates a terminal with video display and keyboard used for entering inputs required for a process or for visually displaying to the user outputs from a process.

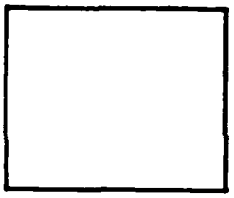
Shows the flow of inputs or outputs to or from a process. Also used to show the transfer or flow of processing control.

Indicates the use of on-line storage of files, which may be process inputs or outputs.

Used to indicate a document input or output for a process. Reports produced by a process are generally displayed as documents.

On-page connector used to indicate an exit to or entry from another part of the chart. The letter contained within the symbol indicates which connector is exited to or entered from.

Off-page connector used to indicate an exit to or entry from another chart within the package of system charts. The number within the system designates the chart to which the exit is made or from which the entry is made.



When used to enclose several symbols (such as on-line storage and display terminal symbols) this indicates a collection or group of inputs or outputs related to a process.

HIPO Chart Formats.

Each chart contains a heading section that identifies the system, the function or process within the system, and the date of chart preparation or latest revision. Below the heading section, the chart contains three distinct areas indicated by the large vertical boxes which divide the page into roughly thirds. The left-hand box contains the input symbols and descriptions, the center box contains a description of processes or processing steps making use of the inputs, and the right-hand box contains the process output symbols and descriptions. The arrows connecting the inputs, processes, and outputs indicate the sequential relationship among the three separate elements of the chart. An input may be used by one or several processes, and a process can

produce several outputs, some of which may serve as inputs to subsequent processes. In general, the order of execution for the processes begins at the top of the page and proceeds to the bottom.

The processing steps contained within each chart are explained in subsection 4.4 Program Descriptions. In general, each process block within a chart will be implemented as an application program or system utility. In some cases, the process may be implemented as several programs because of unusual complexity or size. The charts are refined as software development progresses to reflect these changes.

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This document contains a system specification for the Local Automation Model (LAM). The LAM will provide DoD Technical Libraries in the Shared Bibliographic Input Network a local automated information system to improve the management of DoD bibliographic information. The proposed system will replace the existing manual and batch procedures by technical library personnel. The system will provide automated storage of local bibliographic files and

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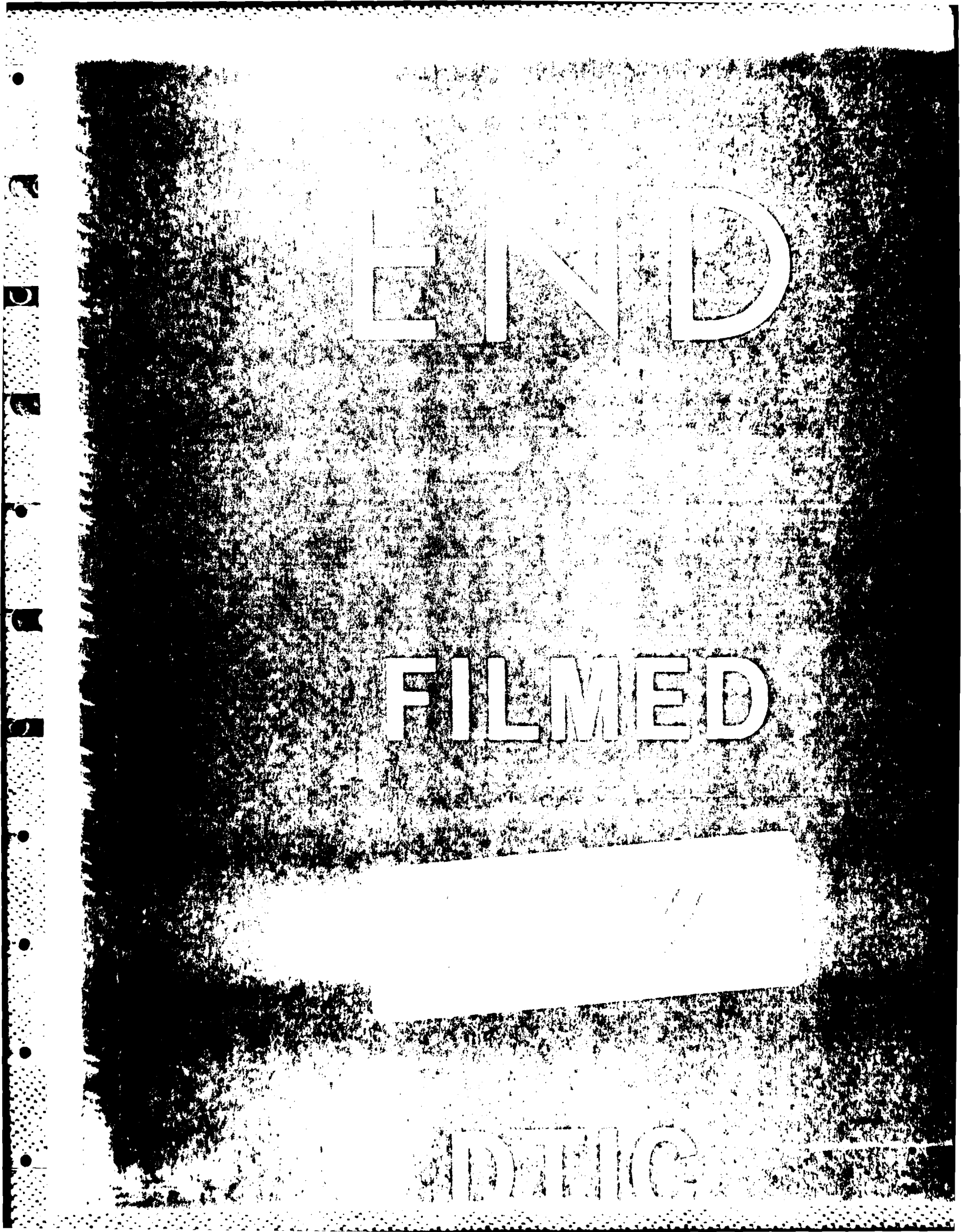
access to both local files and the DTIC Technical Reports Data base. Contained in this system specification are a summary of the system characteristics and requirements, a description of the system operating environment (including equipment, software, interfaces, and security) and a discussion of the design details (including general operating procedures, system logic flow, system data, and program descriptions).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